THE CONSIDERATION OF PRIOR EXPERIENCE IN AUDITOR INDUSTRY SPECIALIZATION

By

MICHAEL BARNES

Bachelor of Science in Accounting
University of Oklahoma
Norman, Oklahoma
May 2002

Masters of Accountancy
University of Oklahoma
Norman, Oklahoma
May 2005

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
July 2015

THE CONSIDERATION OF PRIOR EXPERIENCE

IN AUDITOR INDUSTRY SPECIALIZATION

Dissertation Approved:

Dr. Brad Lawson

Dissertation Adviser

Dr. Tony Kang

Dr. Sandeep Nabar

Dr. Ramesh Rao

ACKNOWLEDGEMENTS

I appreciate the guidance and support provided by my dissertation committee chair, Brad Lawson; and committee members Tony Kang, Sandeep Nabar, and Ramesh Rao. I also appreciate the comments and assistance from John Abernathy, Nathan Berglund, Jimmy Downes, Dan Eshleman, Chad Stefaniak, and workshop participants at Oklahoma State University and Wichita State University.

Name: Michael Barnes

Date of Degree: July 2015

Title of Study: THE CONSIDERATION OF PRIOR EXPERIENCE IN AUDITOR INDUSTRY SPECIALIZATION

Major Field: Business Administration

Abstract: While industry expertise has been identified as a method of differentiation among audit firms to signal their skills and capabilities within particular industries, it is not known whether the length of time that an auditor has been an industry specialist is associated with the quality and pricing of the services that it provides. I construct several measures of prior industry experience to examine these associations. I find evidence that prior industry experience measures at the national level are more strongly associated with audit quality than industry specialization measures. I also find evidence that prior industry experience at the national level is associated with the level of audit fees charged. However, the direction of this association varies depending on whether an auditor is an industry expert by virtue of being an industry leader (market share) or having clients within an industry comprise a significant volume of its audit volume (portfolio share). At the city level, I do not find a significant association between audit quality and prior industry experience; suggesting that prior industry experience is more relevant at the national level. However, I do find evidence that prior industry experience at the city level is associated with an audit fee premium. This result may indicate that industry clients are willing to pay higher audit fees based on an auditor's duration of industry experience, despite there being little evidence that these auditors provide higher quality audit services.

TABLE OF CONTENTS

LIST OF TABLES

Table Page

CHAPTER I

INTRODUCTION

The overall purpose of this study is to examine whether auditors' prior industry experience is associated with current period audit quality and fees. In previous industry specialization studies, an auditor's industry expertise is measured using its current period market or portfolio shares within an industry. However, if an auditor's industry expertise is a function of experience gained in the current year plus experience gained from prior years working within the same industry, then traditional measures of auditor industry specialization are missing a critical element of overall auditor expertise. To examine this, I construct measures of industry specialization that incorporate auditors' prior industry experience and test how these measures are associated with current period audit quality and fees. I also examine whether the association between auditors' prior industry experience and current period audit quality and fees varies by industry characteristics.

Starting in the early 1990's, accounting firms made concerted efforts to align their business models along industry lines. KPMG was the first of the large accounting firms to adopt this business model (Greene and Barrett 1994). Each of the major accounting firms followed KPMG's lead by promoting specific areas of expertise within their audit offerings (Public Accounting Report 1995). Since then, audit firms have focused on providing greater levels of industry-specific expertise within their self-professed set of industry competencies. This lead to

concentration within the audit market and a framework where a few audit firms in each industry possess superior industry-specific knowledge (Hogan and Jeter 1999).

Coinciding with audit firms' focus on industry specialization, accounting research in this area proliferated over the past 20 years (Habib 2011). Early research in this area indicates that larger auditors are more experienced and provide higher quality audits (DeAngelo 1981a). Over time, accounting researchers examined auditors' industry specialization as a means for larger auditors – particularly national and international accounting firms – to differentiate themselves and their service offerings from their peers (Palmrose 1986; Craswell et al. 1995; Kwon 1996; Mayhew and Wilkins 2003; DeFond and Zhang 2014). Research on auditors' industry specialization as a differentiation strategy suggests auditors designated within the literature as "industry specialists" receive higher audit fees and deliver higher quality audits than non-specialists (Gramling and Stone 2001; Habib 2011; DeFond and Zhang 2014).

Despite the general consensus within the literature regarding the association between industry specialization and audit quality and fees, studies within the auditor industry specialization literature vary in how they measure auditors' industry expertise. Prior studies in this area measure industry expertise using total client assets (Behn et al. 2008; Minutti-Meza 2013), total client sales (Dunn and Mayhew 2004; Huang et al. 2007), number of clients within an industry (Ferguson and Stokes 2002; Balsam et al. 2003), and total audit fees charged within an industry (Reichelt and Wang 2010; Numan and Willekens 2012). Additionally, prior studies vary regarding whether industry specialization is a market share phenomenon or a within-firm, or portfolio, phenomenon (Gramling and Stone 2001; Krishnan 2001).

In addition to the various measurement approaches, recent research questions whether the measures used in prior studies are appropriate proxies for the construct of industry expertise. One issue raised is whether current industry specialization proxies measure industry dominance –

exemplified by an industry specialist that audits a few very large clients within an industry – or economies of scale – exemplified by an industry specialist that audits a large number of smaller clients within an industry (Cahan et al. 2011; Fung et al. 2012; Audousset-Coulier et al. 2013). Additionally, there is a question of whether traditional measures of industry specialization are correctly specified (Minutti-Meza 2013). While the efforts of accounting firms to consolidate their industry-specific knowledge are apparent (Hogan and Jeter 1999), the issue of whether current empirical proxies for industry specialization are valid still lingers.

A recent working paper by Gaver and Utke (2014) begins to address these concerns by employing a piecewise regression to differentiate between "seasoned" industry specialists (auditors who have been industry specialists for more than one year) and "unseasoned" industry specialists (auditors who are first-year industry experts). Their results suggest that seasoned industry specialists provide higher audit quality than non-specialists, but their results indicate no significant difference between unseasoned industry specialists and non-specialists. Despite the assertion that industry expertise remains relatively stable over time (Cahan et al. 2011; DeFond and Zhang 2014), the findings of Gaver and Utke (2014) indicate that auditors with more years of industry specialization experience provide higher quality audits than first-year industry specialist auditors. These results suggest a temporal aspect of audit industry specialization that has not been previously explored within the literature.[1] Relying on learning curve theory from the management sciences and auditor tenure literature (Abernathy and Wayne 1974; Adler and Clark 1991; Brooks et al. 2011), my study further explores this temporal aspect by measuring auditor industry specialization based on the total number of years the auditor has been an industry expert. Consistent with these studies, I expect auditors to conduct higher quality audits and receive

[1] In an earlier study, Krishnan (2003) measures auditor industry specialization using aggregate market share and portfolio proportions of total client sales within industry across a ten-year period (1989-1998). However, Krishnan's measure was not largely utilized in subsequent research; and industry specialization remains viewed as a contemporaneous rather than aggregate measure.

greater audit fee premiums the longer they are identified as industry specialists within a particular industry.

As the theory's name suggests, however, the learning curve carries with it an inherent assumption of decreasing returns on experience over time. Prior learning curve literature suggests that these decreasing returns may result from complacency or lack of innovation over time (Abernathy and Wayne 1974), which stems from increased client familiarity (Yelle 1979) or bonding (Brooks et al. 2011). Consistent with auditor tenure research (Johnson et al. 2002; Gul et al. 2009), it is possible that over a long enough time frame, industry experience results in negative benefits to the firm and auditor. Therefore, it is important to determine if there is a point in time where an industry specialist provides the greatest level of expertise with respect to audit quality. My study explores this non-linear aspect of auditor industry specialization using a quadratic model to establish if and when audit quality is maximized with respect to prior industry expertise.

Finally, my study examines how the benefits of prior industry expertise vary across different industries. Prior research finds that the levels of audit quality provided and audit fees charged by industry specialist auditors vary according to the concentration of auditors and clients within an industry (Pearson and Trompeter 1994; Cahan et al. 2011), the operating similarities between firms in the industry (Cairney and Young 2006; Bills et al. 2015), and the complexity of accounting in the industry (Francis et al. 2013; Bills et al. 2015). If the costs and benefits of auditor industry specialization change with the nature of an industry, it is also possible that the costs and benefits of prior industry experience may change as well. It is not immediately obvious whether the associations observed in industry specialization research will be strengthened or attenuated with regard to prior industry experience since the effects of auditors' long-term exposure to a particular industry have not been directly examined in prior research.

To develop working measures of prior industry experience, I begin with established audit industry specialization measures from previous research. I measure audit industry specialization based on auditors' market and portfolio shares both the national and city level. For the market share measure of industry specialization, an auditor is considered to be a national (city) industry specialist if its annual market share is at least 30% (50%) of the national (city) market in its two-digit SIC category (Reichelt and Wang 2010; Minutti-Meza 2013). For the portfolio share measure of industry specialization, an auditor is considered to be a national (city) industry specialist if its annual share in a two-digit SIC category is one of the top three for the auditor across all industries in its portfolio (Krishnan 2003; Knechel et al. 2007). My measure of prior industry experience is the number of consecutive years that an auditor has been a market leader or a portfolio leader at the national (city) level.

When examining industry expertise at the national level, I find evidence that prior industry experience is more strongly associated with audit quality than industry specialization. The association between audit quality and prior industry experience continues to remain positive and significant after controlling for current period industry specialization. I also find mixed evidence that prior industry experience influences the level of audit quality across different types of industries. At the city level, I find no evidence that audit quality is associated with prior industry experience. While industry specialization is positive and significantly associated with audit quality, prior industry experience is insignificant in all of the tests of my primary hypothesis. I also do not find much support for my secondary hypotheses regarding audit quality across different types of industry, suggesting that prior industry experience may only be relevant to audit quality at the national level.

With regard to audit pricing, I find evidence that prior industry experience is associated with the level of audit fees. The initial direction of the association between audit fees and prior industry experience changes depending on whether a market share measure or portfolio share measure is

used. However, both measures are consistent in the finding that audit fees appear to be decreasing in the duration of prior industry experience. I also find strong overall evidence that the association between audit fees and industry characteristics varies with the level of prior industry experience. At the city level, I find evidence that prior industry experience is associated with higher audit fees. While none of the tests on industry characteristics yield significant results, the association between audit fees and prior industry experience is positive and significant in all of my city level regressions. This result may indicate that auditors with prior industry experience at the city level can demand an audit fee premium despite a lack of any evidence that prior industry experience improves the quality of audit services provided.

This study contributes to the existing literature in several ways. First, my research provides new insight regarding the measurement of auditor industry expertise. Several prior studies utilize multiple measures of industry specialization within their analyses to provide robustness to their results (Ferguson and Stokes 2002; Balsam et al. 2003; Goodwin and Wu 2013). However, there are still questions as to whether these studies effectively represent the construct of industry expertise (Audousset-Coulier et al. 2013; Minutti-Meza 2013). A measure of prior industry experience may provide a more detailed means of evaluating the accumulation of industry knowledge. Moreover, Gaver and Utke (2014) provide preliminary evidence that a time-series analysis of industry expertise alleviates some of the econometric concerns raised by prior studies (Minutti-Meza 2013). My study extends and expands upon Gaver and Utke's findings by looking at prior industry experience as a continuous measure rather than as a piecewise regression on experienced and inexperienced industry specialists. A major advantage of this approach is that it allows me to evaluate auditor industry expertise over several points in time. If there are decreasing returns on industry experience, it is feasible that audit quality could be decreasing in industry experience in the long-term. Assuming that this is the case, my model can also estimate the point in time that industry expertise is maximized with respect to audit quality.

Second, my research expands upon the existing literature examining the association between auditor industry specialization and audit quality. In general, research in this area suggests that there is a positive relation between industry specialization and audit quality (Balsam et al. 2003; Lim and Tan 2008; Reichelt and Wang 2010). Prior studies suggest that large auditors (i.e. Big N auditors) provide higher levels of audit quality for industry lines that they specialize in (Gul et al. 2009). While the association between industry expertise and audit quality is not as pronounced for smaller audit firms, there is still an observed positive association (Basioudis and Francis 2007). My study provides more detail regarding this association; particularly as to how the accumulation of industry experience is associated with audit quality.

Third, my research extends the literature that examines audit fees charged by industry specialist auditors. There has been a great deal of research in this area, and much of it is inconsistent (Audousset-Coulier et al. 2013). Several studies identify an audit fee premium when clients employ industry specialist auditors (Huang et al. 2007; Numan and Willekens 2012; Zerni 2012). Other studies, however, present contradictory findings where the use of industry specialist auditors does not result in a fee premium (Pearson and Trompeter 1994; Ferguson and Stokes 2002); or even appears to be associated with reductions in audit fees (Deis and Giroux 1996; Bills et al. 2015). While several recent studies attempt to determine the reasons for the inconsistencies in prior research (Cahan et al. 2011; Fung et al. 2012; Audousset-Coulier et al. 2013), it is worth noting that prior studies have not examined audit fees in the context of prior industry experience. My study fills this void in the literature and provides additional evidence regarding how auditors' industry competencies are associated with the fees that they charge.

Finally, this study provides a new view of how differences across industries may play a role in the level of audit quality that auditors provide and their audit pricing decisions. Just as industries vary with the nature of the goods and services that firms provide, they also vary with respect to auditor-client composition (Cahan et al. 2011), industry homogeneity of firms (Cairney and

Young 2006), and the nature of the accounting guidelines (Francis et al. 2013). If the quality and pricing of services are associated with industry characteristics, then it stands to reason that these associations may vary based on the level of prior industry experience of auditors within these industries. I examine several measures from previous industry specialization studies to determine how audit quality and fees across different types of industries varies based on the prior industry experience of the auditor.

The remainder of the paper is organized as follows. Chapter II reviews the prior research in this area. Chapter III presents and develops my hypotheses. Chapter IV describes my sample selection and research methodology. Chapter V presents the results and Chapter VI concludes the paper.

CHAPTER II

REVIEW OF LITERATURE

1 Measurement of Auditor Industry Specialization

According to Gramling and Stone (2001), audit industry specialization research focuses on how auditors utilize their position within a particular market to provide superior services to their clients and negotiate fees based on the nature of the services that they provide. A majority of industry specialization research examines how large auditors (i.e. Big N auditors) differentiate themselves from one another based on the market share that each possesses within a given industry (DeFond and Zhang 2014).[2] This literature traditionally defines industry specialists as audit firms that are market leaders in an industry for a given year (Balsam et al. 2003). However, there is variation within the literature regarding how to best measure industry specialization, as well as concerns regarding the current measurement approaches.

One concern with using market leadership as the criterion for industry expertise is that it generally excludes smaller audit firms. Since the majority of large clients are audited by large auditors, it is usually only these large auditors that are ever viewed as market leaders within an industry (DeFond and Zhang 2014). Additionally, market leadership may not reflect the industry

[2] More recent studies, particularly those that examine industry specialization at the city or partner level, examine market shares of all firms within a given industry rather than just the Big 4. While the Big 4 are still market leaders in most industries worldwide, a few studies have found non-Big 4 firms with substantial market shares. For example, Basioudis and Francis (2007) noted that the market leaders in three of the sixteen industries that they examined were non-Big 4 accounting firms.

preferences of the audit firms themselves. Krishnan (2001) finds that auditors' self-reported industry specializations frequently do not correlate with their market shares. While the literature often assumes that market leaders are industry specialists, it appears that this definition is limited and may not reflect the self-professed industry specializations of these auditors.

To partially address this concern, more recent studies use a portfolio measure to quantify industry expertise. Rather than evaluating industry knowledge on the basis of market share, the portfolio approach assesses industry expertise based on the proportion a particular industry represents of the auditor's entire portfolio (Yardley et al. 1992). The portfolio approach tends to mediate the issue of large auditor dominance and correlates more closely with auditors' self-reported industry specializations (Krishnan 2001). While the portfolio approach has not been widely used as a primary measure of industry expertise, it is often used as a joint or follow-up measure to the market share approach.[3]

Audit industry specialization studies also differ in the metric used to measure market or portfolio shares. Early studies in this area rely on total client assets (Pearson and Trompeter 1994; Kwon 1996; Hogan and Jeter 1999), total client sales (Ettredge and Greenberg 1990; Menon and Williams 2001; Casterella et al. 2004), and/or number of clients audited (Deis and Giroux 1996; Chin and Chi 2009) by an auditor within an industry. However, each of these measures is considered to be a proxy for total audit fees (Cairney and Young 2006; Knechel et al. 2007), since audit fee data was not widely available in the United States until 2000. A few international studies were able to take advantage of audit fee disclosures in foreign countries such as Australia (Craswell et al. 1995), Hong Kong (DeFond et al. 2000), and Great Britain (Basioudis and Francis 2007). While most recent studies utilize audit fees as the metric for measuring industry

[3] In an effort to capture the effects of both the market share and portfolio measures, Neal and Riley (2004) proposed a weighted market share approach that incorporates cut-off values from both measures to capture the effects of both approaches. Neal and Riley's measure has seen limited use in subsequent industry specialization studies; such as in Cahan et al. 2013.

specialization (Fung et al. 2012; Bills et al. 2015; Krishnan et al. 2013), a few recent studies still utilize other market and portfolio share metrics (Zerni 2012; Minutti-Meza 2013).[4]

Another area of contention in industry specialization research is the determination of the level of industry expertise. The most common designation used in the literature is an indicator variable for the market leader(s) of a particular industry. Palmrose (1986) defines industry expert as the top three auditors within an industry based on market share.[5] Other studies set a market share proportion as the threshold for the industry specialist designation. Craswell et al. (1995) define industry expert as audit firms with at least a 10% market share within an industry. More recent studies include proportional market or portfolio shares as continuous measures of industry expertise. In addition to testing industry specialization using market leader and threshold indicators similar to those used in prior studies, Balsam et al. (2003) also examine industry expertise as a continuous percentage of market share within an industry based on sales, as well as the number of clients audited by the an auditor within a particular industry.

Yet another issue with the measurement of auditor industry specialization lies in geographic specificity. Early studies measure auditor industry expertise almost exclusively at a national level (Palmrose 1986; Craswell et al. 1995; Hogan and Jeter 1999). However, Ferguson et al. (2003) find that national industry expertise only appears to be relevant when a firm is also a city industry leader. In a subsequent study, Francis and Yu (2009) find that industry specialization appears to be a function of local office (i.e. city) expertise rather than national expertise. However, the results in Carson (2009) also suggest that global-level expertise can influence audit fee premiums. Several recent studies expand upon these findings by drilling down to the partner level and note

[4] Several recent studies (Cahan et al. 2011; Fung et al. 2012; Audousset-Coulier et al. 2013) consider audit fees and number of clients jointly in an effort to resolve the issue of audit fee reductions due to economies of scale than some auditors obtain by auditing several clients within the same industry.

[5] Palmrose notes that the market leader designation is only applicable when there is a readily observable difference compared to other auditors. For example Palmrose designates PriceWaterhouse as an industry specialist in the Beverages – Liquor industry with a 59% market share. However, no other audit firms were designated as specialists because their market shares were not substantially different from one another.

that some industry competencies may be driven by partner expertise (Chin and Chi 2009; Zerni 2012; Goodwin and Wu 2013).

One final issue with regard to the measurement of auditor industry specialization is whether traditional measures adequately proxy for industry expertise. While there are several established measures for industry specialization in the accounting literature, little research has been done to determine if these measures capture the construct of industry knowledge or some other associated characteristic(s). After controlling for firm-specific characteristics using a matched-pair sample, Minutti-Meza (2013) finds no differences in audit quality between specialist and non-specialist auditors. While Minutti-Meza maintains that industry-specific knowledge is still important for auditors to possess, he speculates that extant measures of industry specialization are not distinct from client characteristics.

In a recent working paper, Gaver and Utke (2014) expand upon Minutti-Meza's (2013) findings by examining how long an auditor has been an industry specialist. Gaver and Utke (2014) find that industry expertise is positively associated with audit quality, but only for auditors who have been industry experts for more than one year. Perhaps more importantly, their results hold even after utilizing a matched-pair sample similar to Minutti-Meza's (2013), indicating that the consideration of prior industry experience may capture the construct of industry expertise more effectively than traditional measures.

2 Auditor Industry Specialization and Audit Quality

One of the two prominent lines of audit industry specialization research examines the association between industry specialist auditors and audit quality. This line of research is motivated by the notion that industry specialist auditors provide higher quality audits because they possess greater levels of industry knowledge than non-specialist auditors (DeFond and Zhang 2014). Relevant

literature in this area examines a number of different measures of audit and financial reporting quality.

One of the most commonly used proxies for audit quality in industry specialization research is discretionary accruals based on the modified Jones (1991) model (Dechow et al. 1995). Early research in this area finds that industry expertise is negatively associated with clients' use of discretionary accruals (Balsam et al. 2003; Krishnan 2003; Kwon et al. 2007). More recently, Mitra and Hossain (2010) find that clients with identified internal control weaknesses under SOX Section 404 tend to have higher levels of discretionary accruals. However, the use of industry specialist auditors appeared to reduce the occurrence of discretionary accruals for these firms. Cahan et al. (2011) obtain results consistent with previous findings regarding the association between auditor industry expertise and discretionary accruals, but note that discretionary accruals appear to increase with the number of clients that an auditor audits within an industry.

In addition to discretionary accruals, a few studies examine the propensity to issue going concern opinions as an additional measure of audit quality. Lim and Tan (2008) note that the propensity to issue going concern opinions is generally higher for clients that obtain non-audit services from industry specialists (versus those that engage non-specialists). Similarly, Reichelt and Wang (2010) find that auditors that are both national and city level industry specialist auditors have a greater propensity to issue going concern opinions to their clients; while their clients tend to have lower levels of discretionary accruals. Bills et al. (2015) observe that industry specialist auditors operating in more homogenous industries tend to have lower audit fees relative to other industry specialists, but that their propensity to issue going concern opinions and clients' levels of discretionary accruals are not substantially different from other industry specialists. On the other hand, Minutti-Meza (2013) concludes that the propensity to issue going concern opinions and clients' levels of discretionary accruals are not significantly different for specialist and non-specialist auditors when utilizing a matched-pair sample to control for client characteristics.

A few industry specialization studies examine properties of analyst forecasts as a way of evaluating audit quality. Based on the premise that auditor industry specializations reduces earnings management by constraining the use of discretionary accruals, these studies assert that actual and forecasted earnings should be less consistent with one another when a client employs an industry specialist auditor. Lim and Tan (2008) and Reichelt and Wang (2010) both find that clients of industry specialists have a lower propensity to meet analyst forecasts; while Payne (2008) observes that analysts' forecast errors are higher for clients of industry specialist auditors, and that these clients are less likely to just meet or beat analysts' forecasts. However, Behn et al. (2008) examine the properties of analysts' forecasts by positing that higher quality financial information should improve the quality of analysts' forecasts. They find that auditor industry specialization is associated with greater forecast accuracy and reduced forecast dispersion.[6]

Another measure of audit quality that is utilized in industry specialization research is the occurrence of accounting restatements. This literature assumes that higher quality audits constrain clients' material errors and misstatements. Hence, higher quality audits are associated with fewer (or no) restatements. Consistent with this premise, Romanus et al. (2008) find that audit industry specialization is negatively associated with the likelihood of client restatements and that switching from a non-specialist (specialist) auditor to a specialist (non-specialist) auditor increases (decreases) the likelihood of restatement. Stanley and DeZoort (2007) examine restatements in the context of auditor tenure and find that the likelihood of restatement is negatively associated with the length of auditor tenure. The authors further examine the tenure-restatement association and found that the use of an industry specialist auditor appears to reduce the likelihood of restatement for short-tenure engagements. Chin and Chi (2009) also find that

[6] It is worth noting that Lim and Tan (2008), Payne (2008), and Reichelt and Wang (2010) all utilized a market share measure of auditor industry specialization; while Behn et al. (2008) utilized a portfolio measure. It is possible that the difference in findings between these studies is due to the fact that their measures of industry specialization captured different constructs; or, at least, different aspects of industry expertise.

clients audited by industry specialist auditors are less likely to have accounting restatements, but this association appears to be driven by industry expertise at the partner level rather than the firm level.

Industry specialization studies employ other various proxies for audit quality. Audit quality provided by industry specialist auditors appears to improve the contemporaneous association between earning and returns, otherwise known as the earnings response coefficient (ERC) (Balsam et al. 2003; Kwon et al. 2007). Clients of industry specialist auditors also appear to recognize losses in a timelier manner (Krishnan 2005; Lim and Tan 2009). Dunn and Mayhew (2004) observe that auditor industry specialization appears to improve the quality of client disclosures. Finally, Almutairi et al. (2009) find that clients of specialist auditors tend to have less information asymmetry (proxied by bid-ask spread) than clients of non-specialist auditors.

3 Auditor Industry Specialization and Audit Fees

The other prominent line of industry specialization research deals with the association between industry expertise and audit fees. Studies in this area continue to examine whether industry expertise is associated with audit fee premiums, discounts, or neither. Craswell et al. (1995) provide some of the earliest evidence in this area; indicating that industry specialist auditors demand audit fee premiums. Subsequent research dissects these findings to determine what additional characteristics (if any) drive this premium. Ferguson et al. (2003) and Francis et al. (2005) find that auditors demand premiums when they are industry market leaders at both the city and national (or "joint") level. However, Basioudis and Francis (2007) find that only city level expertise appears to matter for determination of the audit fee premium for a sample of UK firms. Numan and Willekens (2012) find similar results; noting that audit fees are increasing in an auditor's city level portfolio share within its client's industry. However, a few studies call into question whether these observed fee premiums are the result of industry expertise. Ferguson et al.

(2006) find that overall city leaders may demand small fee premiums regardless of whether or not they are city, national, or joint industry leaders. More recently, Choi et al. (2010) provide evidence that office size is a critical determinant of audit fee premiums.

Still other studies examine other possible explanations for the association between industry expertise and audit fees. Casterella et al. (2004) observe that the fee premium for industry specialist auditors is predicated on the level of bargaining power (represented by client size) that the auditor has over the client. As client size increases (i.e. auditor bargaining power decreases), the audit fee premium decreases. Huang et al. (2007) support these findings and note that audit fees for specialist auditors decrease as a client becomes increasingly large relative to the rest of its auditor's clientele. Mayhew and Wilkins (2003) examine industry specialization as a mechanism for differentiation from other auditors. They conclude that audit fees appear to increase with the difference in market share between audit firms, though this does not necessarily indicate that industry expertise is the basis for the fee premium. Zerni (2012) expands upon these findings, suggesting that clients may view firm- and partner-level industry expertise as differentiation strategies, and that these strategies are associated with fee premiums.

However, not all of the studies in this area find an audit fee premium associated with industry specialization. Neither Palmrose (1986) nor Menon and Williams (2001) are able to find a significant association between industry specialization and audit fees. Pearson and Trompeter (1994) also note the lack of an association between industry specialization and audit fees, but observe that audit fees are lower in more concentrated industries. While DeFond et al. (2000) find an association between industry specialization and audit fees, they are quick to note that this association only exists for "brand name" (i.e. Big 6) industry specialist auditors; and that non-Big 6 accounting firms who are industry specialist auditors do not appear to demand a fee premium.

Other studies state that the fee premium for industry specialist auditors disappears when subsequent conditions and considerations are taken into account. Ferguson and Stokes (2002) examine a sample of Big 6/Big 5 firms from the mid-1990's and remark that the fee premium observed in Craswell et al. (1995) does not appear to exist following the merger of the Big 6 into the Big 5. More recently, Goodwin and Wu (2013) discover that, after controlling for partner-level expertise within industry specialist firms, the fee premiums for national and city level specialists are no longer present.

A few studies present evidence that indicates auditor industry specialization may actually reduce audit fees. In their study, Ettredge and Greenberg (1990) note that clients who changed to an auditor with greater industry expertise than the predecessor auditor appear to pay lower audit fees. However, Ettredge and Greenberg attribute a portion of this observation to the "low balling" phenomenon, where auditors discount the price of audit service in the early years of an engagement in an effort to attract new clients (DeAngelo 1981b).

Deis and Giroux (1996) examine a sample of working papers for Texas Independent School District audits during 1983 and 1984. Using number of clients audited as their market share metric, they find that overall audit fees and hours are lower for market leaders, but audit quality is actually higher. Similar to Ettredge and Greenberg (1990), the authors attribute their findings in part to low balling of first-year audits. However, these findings are also consistent with Pearson and Trompeter (1994), in that audit clients may realize lower audit fees in more concentrated industries. Fung et al. (2012) extend this line of research by examining how industry scale – measured as the number of clients an auditor audits within an industry – influences the association between industry specialization and audit fees. They find that the clients of industry specialists with a large number of clients in an industry can benefit from scale discounts in audit fees due to auditor industry experience. These results are corroborated by recent studies in this area (Audousset-Coulier et al. 2013; Cahan et al. 2013). However, Cahan et al. (2011) find that

overall audit quality of industry specialists appears to decrease as the number of industry clients audited increases.

CHAPTER III

HYPOTHESES DEVELOPMENT

The studies of audit industry specialization discussed previously generally assume that auditors' market and portfolio shares stay relatively stable over time; particularly for large auditors (Cahan et al. 2011; DeFond and Zhang 2014). As such, they do not consider the effect of prior audit industry experience in their predicted associations. If industry knowledge is acquired over time, however, then prior industry experience may be associated with current period audit quality and audit fees.

For my first hypothesis, I consider the role that prior industry experience plays in the quality of audits provided and the pricing of these audits. Studies that examine contemporaneous associations find that industry specialization appears to improve audit quality (Balsam et al. 2003; Kwon et al. 2007; Reichelt and Wang 2010). More importantly, though, Gaver and Utke (2014) find only auditors that are industry specialists for more than one year appear to provide higher levels of audit quality. The findings from Gaver and Utke (2014) agree with what we know about the "learning curve" from auditor tenure research (Brooks et al. 2011; Brooks et al. 2013). Learning curve theory suggests that, as good and service providers (in this case, auditors) improve their skills and processes, they realize greater returns due to increases in productivity; due in large part to the overall increase in providers' knowledge gained over this time (Yelle 1979; Henderson 1984). Prior research in manufacturing (Adler and Clark 1991), chemical

processing (Lieberman 1984), and medical procedures (Moore and Bennett 1995; Schauer et al. 2003) finds that individuals and companies with greater experience in their fields tend to be more productive and have lower error rates than their peers. With regard to this study, the learning curve implies that a positive association should exist between prior industry experience and audit quality.

However, prior studies do not explicitly measure prior industry experience on a continuous basis. Accordingly, it is not clear what to expect when an auditor is highly experienced with regard to audit quality. While the assumption may be more experience is better, it is also possible that auditors with prior industry experience may realize diminishing returns on audit quality over time due to lack of innovation, complacency, and even auditor-client bonding (Abernathy and Wayne 1974; Brooks et al. 2011). It is feasible that, over a long enough time frame, the association between prior industry expertise and audit quality is negative for highly experienced industry specialist auditors.

While I do not dismiss the possibility of decreasing returns on audit quality for industry specialist auditors, I maintain the premise that audit quality is increasing in prior industry experience:[7]

> ***H1a:*** *The number of consecutive years that an auditor has been an industry expert is positively associated with the audit quality provided by an auditor.*

For audit fees, this intuition is less apparent. Since there are no prior studies that consider prior industry experience with regard to audit pricing, the expectation of how prior industry experience is associated with audit fees is unclear. On one hand, prior research suggests that larger, more established auditors can demand higher audit fees (Craswell et al. 1995; DeFond et al. 2000). To the extent that prior industry experience reflects overall experience, it might be reasonable to

[7] I address the possibility of decreasing returns on audit quality for industry specialist auditors by incorporating a quadratic measure of prior industry experience in my model. If audit quality is increasing in the short-term and decreasing in the long-term of industry experience, it should be captured by this measure.

expect that prior industry experience is associated with higher audit fees. On the other hand, previous research also finds that auditors with significant industry presence – particularly auditors with a large number of clients within an industry and auditors working in more homogeneous industries – can pass on the benefits of the knowledge and efficiency from their expertise through lower audit fees to their clients (Cahan et al. 2011; Bills et al. 2015). The economies of scale argument speculates that some auditors obtain market leadership in an industry by auditing a large number of clients within the industry, and that the clients of these auditors pay lower audit fees as a result.

I consider the potential effects of industry specialization economies of scale on audit quality and audit fees in my subsequent hypotheses. Thus, I predict that, absent any other considerations, audit fees are increasing in prior industry experience:

> ***H1b:*** *The number of consecutive years that an auditor has been an industry expert is positively associated with the audit fees charged by an auditor.*

For my remaining hypotheses, I examine how audit quality and fees across different types of industries vary with the level of prior industry experience. Specifically, I consider characteristics of the auditors, clients, and existing accounting guidance for certain industries. My second hypothesis looks at the association between the number of clients that an industry specialist audits within an industry and audit quality (audit fees). As mentioned in my first hypothesis, prior research examines how some auditors are market leaders by virtue of auditing a large number of clients within an industry. While these studies primarily focus on how economies of scale can affect audit pricing of industry specialists, there is also some concern regarding audit quality. Cahan et al. (2011) find that audit quality of industry specialist auditors decreases as the number of clients that they audit increases. With regard to prior industry experience, this raises some interesting questions. On one hand, the findings of Cahan et al. suggest that the association

between prior industry experience and audit quality may be less positive for auditors that audit a large number of clients due to the variation in the audits that they perform. On the other hand, increased industry exposure due to a significant number of clients in an industry could conceivably be a source of competitive advantage over time. Although the requirement of having to perform a number of different procedures may hinder audit quality in the short-run, these auditors may be better equipped to handle unique issues due to the diversity of their prior experience.

Regardless of whether the number of clients audited within an industry is beneficial or detrimental with respect to audit quality, it stands to reason that auditors with prior industry experience should still provide higher audit quality. Because of this, I predict that the association between audit quality the number of clients is higher for clients of auditors with prior industry experience:

> ***H2a:*** *The number of consecutive years that an auditor has been an industry expert for is positively associated with the audit quality provided by an auditor for clients of auditors with a large number of industry clients.*

The consideration of prior industry experience provides some interesting tension with regard to how the number of audit clients within an industry may influence audit fees. While the literature is generally conclusive that audit fees are decreasing as the number of industry specialist clients is increasing, it is possible that possessing this industry expertise over time provides a different result. The fee savings derived from an auditor's economies of scale in an industry stand at odds to the fee premiums that the auditor may be able to demand for being a long-term industry expert. Of course, as I postulate with regard to audit quality, audit fees should remain positively associated with prior industry expertise. Accordingly, I hypothesize that the association between

audit quality and the number of industry clients is higher for clients of auditors with prior industry experience:

> ***H2b:*** *The number of consecutive years that an auditor has been an industry expert is positively associated with the audit fees charged by an auditor for clients of auditors with a large number of industry clients.*

My third hypothesis tests how audit quality (audit fees) varies with the level of homogeneity between the firms in the industry. Cairney and Young (2006) define industry homogeneity as the degree to which firms in a given industry display similar characteristics. Firms in more homogeneous industries are going to be more similar in operations and structure. To that end, the ease with which client-acquired knowledge can transfer to other clients in the same industry is facilitated by how similar or dissimilar these firms are. Cairney and Young find that auditors tend to specialize in industries where the homogeneity of their member firms is greater.

There is a conundrum regarding how industry homogeneity might affect the association between prior industry experience and audit quality. Since the industry-specific skills and knowledge gained in homogeneous industries is easier to transfer between clients, long-term exposure to an industry may result in greater overall industry knowledge. This, in turn, may translate into improvements in the quality of industry client audits. Of course, this also assumes that similarity between clients in an industry is beneficial with regard to auditor knowledge. It is also possible that exposure to proprietary knowledge of a client is beneficial to an auditor and its other industry clients because the auditor can apply the experiences from different settings to different engagements. In this case, industry homogeneity might actually impair the quality of industry client audits due to the lack of variance in these audits. However, the findings of Cairney and Young suggest that auditors choose to specialize in more homogenous industries due in some part to the ease with which industry-specific knowledge can be transferred between clients. Thus, I

predict that audit quality is higher in homogenous industries for clients of auditors with prior industry experience:

> ***H3a:*** *The number of consecutive years that an auditor has been an industry expert for is positively associated with the audit quality provided by an auditor for clients in more homogenous industries.*

Bills et al. (2015) find that auditors operating in more homogenous industries benefit from cost efficiencies, which is passed down to the clients in the form of reduced audit fees. To the extent that auditors prefer to specialize in more homogenous industries, overall audit fees may be lower in more homogenous industries. That said, if an auditor is recognized as an authority within a particular industry due to its work with particular clients in the industry, then it is possible that the auditor can demand higher fees for its work. While audit fees should be comparatively lower for auditors in more homogenous industries, I predict that auditors with prior industry experience should be able to demand higher audit fees in these industries:

> ***H3b:*** *The number of consecutive years that an auditor has been an industry expert is positively associated with the audit fees charged by an auditor for clients in more homogenous industries.*

My final hypothesis examines how differences in the complexity of accounting across industries are associated with audit quality (audit fees). In a recent working paper, Francis et al. (2013) inspects differences of accounting across industries based on whether the AICPA has issued accounting guidance for an industry. They put forward that industries with specific AICPA accounting guidance possess greater accounting complexity than other industries. I examine these accounting complexities in the context of prior auditor industry experience.

With regard to audit quality, it may be that prior industry experience matters more when an industry is characterized by greater accounting complexity. If audits within a particular industry

require more detailed and non-traditional testing procedures, then auditors with experience in these procedures will probably provide better services than auditors that are less familiar with these procedures. That said, it is not clear if long-term exposure to these industry accounting complexities makes a difference in the performance of an audit. In an experimental setting, Arnold et al. (2000) find that experienced auditors appear to be subject to the same professional judgment biases as their less-experienced counterparts when performing highly complex tasks. These findings suggest that accounting complexities may, to some degree, reduce the improvements in decision making achieved through prior experience. Additionally, it is possible that industry-specific guidance may act as a substitute for industry experience. While prior industry experience is still associated with improved audit quality, the benefits of prior industry experience matter less in industries with accounting guidance. To that end, I hypothesize that prior industry experience probably matters less in industries with AICPA accounting guidance with regard to audit quality:

> ***H4a:*** *The number of consecutive years that an auditor has been an industry expert for is negatively associated with the audit quality provided by an auditor for clients in industries with greater accounting complexity.*

The effect of accounting complexities on audit fees is somewhat less clear. The traditional audit pricing model is a function of auditor effort and risk (Simunic 1980). It can be assumed that accounting complexities in an industry affect both of these. If the AICPA issues guidance on a particular industry, then an auditor must expend additional effort to become familiar with this guidance. If an auditor fails to do so, then it is subject to the threat of additional litigation due to a potential lack of adequacy in its accounting procedures. In other words, accounting complexities should increase auditor effort and litigation risk, so they also probably increase audit fees. To the degree that auditors with prior industry expertise charge higher audit fees, these auditors may

charge incrementally higher audit fees when they have to adjust for increased levels of effort and risk.

However, it is also possible that auditor experience within an industry might actually reduce the audit fees associated with industry accounting complexity. Auditors that are experienced with industry accounting complexities may not need to increase fees to compensate for increased effort and risk. Bills et al. (2015) find that industry specialist auditors operating in more homogenous industries with greater accounting complexity appear to charge lower audit fees than non-specialist auditors in these industries. These findings suggest that industry specialist auditors are better suited to deal with unique accounting issues within the industry; and do not need to charge higher fees to do so.

While both arguments are reasonable, I believe that the former is more likely than the latter. I predict audit fees for clients of auditors with prior industry experience will be higher in industries where the AICPA has issued specific accounting guidance:

> ***H4b:*** *The number of consecutive years that an auditor has been an industry expert is positively associated with the audit fees charged by an auditor for clients in industries with greater accounting complexity.*

CHAPTER IV

METHODOLOGY

1 Industry Specialization Measurement

To evaluate industry specialization within the context of prior research, I measure auditor market and portfolio shares at both the national and city level (Ferguson et al. 2003). While there are numerous established measures of industry specialization in the extant literature (Audousset-Coulier et al. 2013), I use the following two definitions for my research:

1) An auditor is considered to be a national (city) industry specialist if its annual market share is at least 30% (50%) of the national (city) market in its two-digit SIC category (Reichelt and Wang 2010; Minutti-Meza 2013);

2) An auditor is considered to be a national (city) industry specialist if its annual share in a two-digit SIC category is one of the top three for the auditor across all industries in its portfolio (Krishnan 2003; Knechel et al. 2007).

I measure auditor market share as the proportion of total assets audited by an auditor within an industry to the total assets of all firms operating within the industry. I measure auditor portfolio share as the proportion of total assets audited by an auditor within an industry to the total assets audited by an auditor across all industries. To develop my measures of prior industry experience,

I sum the number of consecutive years than an auditor has been a market or portfolio leader within a given industry.

2 Sample Selection

I use data for U.S. firms from the Compustat North America Fundamentals Annual and Audit Analytics databases to measure auditor market and portfolio shares at the national and city levels. I also obtain additional auditor and client data from these databases.[8] The testing sample begins in 2003 following the commencement of the financial reporting provisions under the Sarbanes-Oxley Act of 2002.[9] To have a sufficient basis of measurement for my measure of industry specialization, I measure market and portfolio shares for all audit firms starting in 1993; when the Big 6 audit firms began restructuring along industry lines (Greene and Barrett 1994). The definitions for all of the variables that I use in my study are provided in the appendix.

3 Audit Quality Tests

I measure audit quality using the performance-adjusted discretionary accruals measure based on the modified Jones (1991) model from Kothari et al. (2005):

$$TACC_{it} = \beta_0 (1 / A_{it-1}) + \beta_1 \Delta REV_{it} + \beta_2 PPE_{it} + \beta_3 ROA_{it-1} + \varepsilon_{it} \quad (1)$$

where, for company *i* in year *t*, $TACC_{it}$ is total accruals (net income before continuing operations minus cash flows from operations), scaled by total assets at the end of the previous year. ΔREV_{it} is the change in revenue from the prior year, scaled by total assets at the end of the previous year. PPE_{it} is gross property, plant, and equipment, scaled by total assets at the end of the previous

[8] In order to perform some of my additional analysis, I also obtain analyst data from the Institutional Brokers' Estimate System (I/B/E/S) for the sample period.

[9] The period for the testing sample in each test varies based on data requirements and availability. As previously mentioned, the national level audit quality tests take place from 2003 to 2013. Due to business segment data only becoming available in Compustat starting from 2007, the national level audit fee tests take place from 2007 to 2013. Finally, the MSA data needed to construct the city level measures of industry specialization are only widely available starting from 2000. Due to my self-imposed requirement for ten years of leading data for the construction of my prior industry experience measures, the city level tests for both audit quality and audit fees are restricted to the period from 2010 to 2013.

year. Finally, ROA_{it-1} is the return on assets (net income divided by average total assets) for the previous year. I estimate equation (1) annually by industry (based on two-digit SIC category). I require at least ten observations for each industry-year. $DACC_{it}$ is my measure of discretionary accruals; and is estimated as the negative of the absolute value of the residual (ε_{it}) from equation (1).[10]

Discretionary accruals is one of the most commonly used measures of financial reporting quality (Dechow et al. 1995; Kothari et al. 2005); and, more specifically, audit quality (DeFond and Zhang 2014). The intuition behind discretionary accruals as a metric for audit quality is that client earnings management decreases as audit quality increases. Thus, audit quality is deemed to be higher as discretionary accruals approach zero (Bartov et al. 2000).

To test whether auditors' prior industry experience is associated with the quality of the audits they provide, I estimate the following regression model based on Reichelt and Wang (2010):

$$\begin{aligned} DACC_{it} = \; & \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} \\ & + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} \\ & + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} \\ & + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it} \end{aligned} \quad (2)$$

The dependent variable, $DACC_{it}$, is the negative of the absolute value of the residual from equation (1). My primary variable of interest, $PRIOR\_EXP_{it}$, represents one of two proxies for prior industry experience. My first proxy ($MKTCONSEC_{it}$) is the number of consecutive years that client *i*'s auditor has been a market leader within the client's industry. The second proxy ($PORTCONSEC_{it}$) is the number of consecutive years that client *i*'s auditor has maintained a portfolio share within the client's industry that is among the top three portfolio shares across all industries for the auditor. While my measures allow for the consideration of prior experience in the consideration of industry specialization, it is possible that the associations between my

[10] I use the negative of the absolute value of discretionary accruals so that it is increasing in audit quality.

measures and my dependent variables are not strictly linear. In other words, there may be diminishing returns on auditor expertise over time. To address this concern, I estimate my measures in two ways. First, I perform logarithmic transformations of my measures to alleviate linearity concerns. Second, I estimate quadratic versions of my models with squared value of my measures. An advantage of this method is that it allows for the determination of the "optimal" level of industry experience with respect to audit quality (Brooks et al. 2011; Brooks et al. 2013).[11]

In addition to my measures of prior industry experience, I also include measures of current period industry expertise (*CURR_ISPEC*) in my models. $MKTLEADER_{it}$ is an indicator variable with a value of "1" if the auditor is the current market leader within company *i*'s industry, and "0" otherwise. $PORTLEADER_{it}$ is an indicator variable with a value of "1" if the auditor's annual portfolio share within company *i*'s industry is one of the top three portfolio shares across all industries for the auditor. I consider these contemporaneous measures of industry specialization to determine whether my measures of prior industry experience contain any additional relevant information beyond what is already provided by these traditional measures.

The next eleven variables in equation (2) represent control variables from prior studies of industry specialization and audit quality. $SIZE_{it}$ is the natural logarithm of the market value of equity at the end of the year. CFO_{it} is cash flows from operations, scaled by total assets at the end of the previous year. $STDEARN_{it}$ is the standard deviation of income before extraordinary items for the past four years. LEV_{it} is total long-term debt divided by total assets. $LOSS_{it}$ is an indicator variable with a value of "1" is net income is negative, and "0" otherwise. MB_{it} is the market-to-book ratio of equity value. $ALTMAN_{it}$ is Altman's (1983) financial distress score (Z-score). $TACC_{it-1}$ is total

[11] To determine the point in time where industry expertise is maximized with respect to audit quality, I calculate the first-order condition for equation (2) with respect to prior industry experience. This calculation assumes that a quadratic model is properly specified for the association between audit quality and prior industry experience.

accruals from the prior year, scaled by total assets at the end of the previous year. $GROWTH_{it}$ is the percentage of sales growth from the prior period. $BIG4_{it}$ is an indicator variable with a value of "1" if the company's auditor is a Big 4 accounting firm, and "0" otherwise. $TENURE_{it}$ is the natural logarithm of the number of years that the company has retained the same auditor.

The final three variables are measures of auditor, client and accounting complexity characteristics across industries. $NUMCLIENTS_{it}$ is the natural logarithm of the number of clients that company *i*'s auditor audits within the company's industry. MOX_i is based on the industry homogeneity measure from Cairney and Young (2006), measured as the mean of the correlation coefficients of the percentage change in operating expenses for all companies in company *i*'s industry. $COMPLEX_i$ is an indicator variable with a value of "1" if the AICPA has issued specific accounting guidance for company *i*'s industry, and "0" otherwise.

To test **H1a**, I measure the correlation between my dependent variable, $DACC_{it}$, and my measures of prior industry experience (*PRIOR_EXP*) in β_2. I predict that the coefficient on β_2 for both $MKTCONSEC_{it}$ and $PORTCONSEC_{it}$ will be positive. For **H2a**, I interact my *PRIOR_EXP* variables with the number of clients audited within an industry ($NUMCLIENTS_{it}$) in β_{14}. Consistent with the prior research indicating that audit quality varies inversely with the number of clients (Cahan et al. 2011), I predict that the coefficient on $NUMCLIENTS_{it}$ will be negative, but that the coefficient on the interaction will be positive. For **H3a**, I interact my *PRIOR_EXP* variables with the industry homogeneity measure (MOX_i) in β_{15}. Based on the assumption that industry specific knowledge should be more readily transferable between audit clients in more homogenous industries, I predict the coefficients on both MOX_i and the interaction will be positive. Finally, for **H4a**, I interact my *PRIOR_EXP* variables with the accounting complexity measure ($COMPLEX_i$) in β_{16}. Presumably, improved accounting guidance should improve the quality of audits in complex industries. However, it is likely that this guidance matters less for

clients of auditors with prior industry experience. Therefore, I expect to see a positive coefficient on $COMPLEX_i$ and a negative coefficient on the interaction.

For the remaining variables in equation (2), prior research suggests that discretionary accruals are generally *lower* for companies that engage industry specialist auditors ($MKTLEADER_{it}$ and $PORTLEADER_{it}$), large companies ($SIZE_{it}$), companies with greater cash flows from operations (CFO_{it}), companies with greater leverage (LEV_{it}), and companies that engage Big 4 accounting firms ($BIG4_{it}$). Accordingly, I predict positive signs on the coefficients for each of these variables. Prior research also suggests that discretionary accruals are generally *higher* for companies with greater earnings volatility ($STDEARN_{it}$), companies with substantial prior period accruals ($TACC_{it-1}$), and companies with substantial growth opportunities (MB_{it} and $GROWTH_{it}$). Accordingly, I predict negative signs on the coefficients for each of these variables.[12] Prior research on discretionary accruals is inconclusive regarding companies with current period losses ($LOSS_{it}$), companies with high bankruptcy risks ($ALTMAN_{it}$), and companies with long-tenured auditors ($TENURE_{it}$). Accordingly, I make no prediction regarding the signs on the coefficients for these variables.

4 Audit Fee Tests

Despite earlier research that indicates that industry specialist auditors may charge lower audit fees due to economies of scale (Pearson and Trompeter 1994; Deis and Giroux 1996), recent industry specialization literature is of the general consensus that industry specialist auditors demand higher audit fees than non-specialists (Basioudis and Francis 2007; Numan and Willekens 2012; Zerni 2012). While some studies have asserted that this fee premium is contingent on characteristics of

[12] Because I take the negative of the absolute value of discretionary accruals, the predicted sign on the coefficient for $TACC_{it-1}$ will be swapped from the expectation. In other words, I expect a negative association between current period discretionary accruals and prior period total accruals, but a *positive* coefficient on $TACC_{it-1}$.

the clients (Cahan et al. 2011), audit firms (Goodwin and Wu 2013), and industry (Bills et al. 2015), industry specialization should be associated with higher audit fees, all other things equal.

In an effort to control for the aforementioned client, auditor, and industry characteristics, I estimate the following audit fee regression model based on Francis et al. (2005):

$$\begin{aligned} FEES_{it} = \; & \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} \\ & + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} \\ & + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} \\ & + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it} \end{aligned} \quad (3)$$

The dependent variable, $FEES_{it}$, is the natural logarithm of total audit fees for client *i* in year *t*. The variables on β_3 through β_{14} in equation (3) represent control variables from prior industry specialization studies on audit fees. $ASSETS_{it}$ is the natural logarithm of total assets. $BUSSEG_{it}$ is the natural logarithm of the number of the company's business and geographic segments. $CATA_{it}$ is the ratio of current assets to total assets. $QUICK_{it}$ is the ratio of quick assets (current assets less inventories) to current liabilities. $FOREIGN_{it}$ is the ratio of foreign revenues to total company revenues. GC_{it} is an indicator variable with a value of "1" if the auditor issues a going concern opinion, and "0" otherwise. YE_{it} is an indicator variable with a value of "1" if the company has a non-December 31st year-end, and "0" otherwise. $FIRSTYR_{it}$ is an indicator variable with a value of "1" if the current year is the first year that the auditor has audited the company, and "0" otherwise. The remaining variables are as defined above.

To test **H1b**, I measure the correlation between my dependent variable, $FEES_{it}$, and my measures of industry specialization (*PRIOR_EXP*) in β_2. I predict that the coefficient on β_2 for both $MKTCONSEC_{it}$ and $PORTCONSEC_{it}$ will be positive. For **H2b**, I interact my *PRIOR_EXP* variables with the number of clients audited within an industry ($NUMCLIENTS_{it}$) in β_{15}. For **H3b**, I interact my *PRIOR_EXP* variables with the industry homogeneity measure (MOX_i) in β_{16}. These two hypotheses reflect the economies of scale argument in prior industry specialization literature.

Prior research suggests that auditors pass on cost efficiencies to their clients from auditing a large number of clients or operating in more homogenous industries (Cahan et al. 2011; Fung et al. 2012; Bills et al. 2015). Consistent with the findings in prior studies, I predict negative coefficients on both $NUMCLIENTS_{it}$ and MOX_i. However, I predict that the benefits derived from utilizing an auditor with prior industry experience will be reflected by positive coefficients on the prior industry experience interactions with number of clients and industry homogeneity. Finally, for **H4b**, I interact my *PRIOR_EXP* variables with the accounting complexity measure ($COMPLEX_i$) in β_{17}. It stands to reason that audits in more complex industries with greater accounting guidance are more costly. Assuming that auditors with prior industry experience are more knowledgeable at performing audits in industries with specific accounting guidance, I expect to see positive coefficients on both $COMPLEX_i$ and the interaction between prior industry experience and accounting complexity.

For the remaining variables in equation (3), prior research suggests that companies tend to pay *higher* audit fees when they engage a Big 4 auditor ($BIG4_{it}$) or industry specialist auditor ($MKTLEADER_{it}$ and $PORTLEADER_{it}$), when companies are larger ($ASSETS_{it}$) or have more extensive operations ($BUSSEG_{it}$ and $FOREIGN_{it}$), and when companies have identifiable risk factors; such as higher levels of current assets ($CATA_{it}$) and debt (LEV_{it}), or current period performance issues (GC_{it} and $LOSS_{it}$). Accordingly, I predict positive signs on the coefficients for each of these variables. Prior research suggests that companies tend to pay *lower* audit fees when they have stronger operating performance (ROA_{it}), fewer liquidity issues ($QUICK_{it}$), operate on non-calendar years (YE_{it}), or engage new auditors ($FIRSTYR_{it}$). Accordingly, I predict negative signs on the coefficients for each of these variables.

CHAPTER V

RESULTS

1 Descriptive Statistics

Table 1 presents descriptive statistics for the variables used in the regressions. To eliminate the effect of outliers, all continuous variables are Winsorized at the 1% and 99% levels. The means and medians for the dependent variables – $ABSDACC_{it}$ and $FEES_{it}$ – and control variables are reasonably consistent with the values presented in recent industry specialization studies (Reichelt and Wang 2010; Minutti-Meza 2013). The means for the national level industry specialization reveal that 29% of auditors are classified as industry specialists using the market share measure, and 15% of auditors using the portfolio share measure. The means for national level prior industry experience reveal that, on average, auditors' consecutive years of industry expertise are 2.17 using the market share measure and 1.24 years using the portfolio share measure.

The city level measures of industry specialization have slightly larger means. Around 30% of auditors would be classified as industry specialists using the market share measure, and 18% using the portfolio share measure. Given that the prior industry experience values are derived from these industry specialization measures, it is readily apparent that the city level prior industry experience measures are also larger than the national level measures. On average, auditors have 2.93 consecutive years of industry expertise using the market share measure and 1.91 years using

TABLE 1
Descriptive Statistics

Variable	N	Mean	Median	Standard Deviation	1st Quartile	3rd Quartile
Dependent Variables						
$ABSDACC_{it}$	38,365	-0.09402	-0.04478	0.32306	-0.09526	-0.01913
$FEES_{it}$	25,998	13.84223	13.86425	1.26841	13.08220	14.62330
Variables of Interest - National						
$MKTLEADER_{it}$	38,365	0.29107	0.00000	0.45426	0.00000	1.00000
$PORTLEADER_{it}$	38,365	0.15585	0.00000	0.36271	0.00000	0.00000
$MKTCONSEC_{it}$	38,365	2.16888	0.00000	4.32951	0.00000	2.00000
$PORTCONSEC_{it}$	38,365	1.24082	0.00000	3.74755	0.00000	0.00000
Variables of Interest - City						
$MKTLEADER_{it}$	10,995	0.29841	0.00000	0.45758	0.00000	1.00000
$PORTLEADER_{it}$	10,995	0.18490	0.00000	0.38824	0.00000	0.00000
$MKTCONSEC_{it}$	10,995	2.93097	0.00000	5.41861	0.00000	4.00000
$PORTCONSEC_{it}$	10,995	1.91405	0.00000	5.18076	0.00000	0.00000
Industry Characteristic Variables						
$NUMCLENTS_{it}$	38,365	3.39794	3.55535	1.25006	2.60000	4.50000
MOX_i	38,365	0.17419	0.14200	0.10807	0.10000	0.20000
$COMPLEX_i$	38,365	0.27473	0.00000	0.44638	0.00000	1.00000

TABLE 1
Descriptive Statistics (continued)

Variable	N	Mean	Median	Standard Deviation	1st Quartile	3rd Quartile
Control Variables						
$SIZE_{it}$	38,365	6.04509	6.03727	2.21638	4.57800	7.52200
CFO_{it}	38,365	0.05864	0.08770	0.30114	0.02842	0.14499
$STDEARN_{it}$	38,365	103.03029	24.08480	221.28452	7.55910	88.42000
LEV_{it}	38,365	0.19115	0.13376	0.28129	0.00072	0.28972
$LOSS_{it}$	38,365	0.31469	0.00000	0.46440	0.00000	1.00000
MB_{it}	38,365	1.98651	1.31009	39.41442	0.75539	2.23059
$ALTMAN_{it}$	38,365	2.17893	2.39627	12.61942	1.09998	4.07631
$TACC_{it-1}$	38,365	-0.08040	-0.05958	0.36724	-0.11109	-0.02260
$GROWTH_{it}$	38,365	0.40371	0.07662	20.69015	-0.01937	0.20923
$BIG4_{it}$	38,365	0.86636	1.00000	0.34027	1.00000	1.00000
$TENURE_{it}$	38,365	2.01968	2.07944	0.82605	1.39000	2.64000
$ASSETS_{it}$	25,998	6.67306	6.63893	2.07477	5.22830	8.09336
$BUSSEG_{it}$	25,998	2.14780	2.19723	0.88955	1.60944	2.77259
$CATA_{it}$	25,998	0.45226	0.44037	0.26204	0.22983	0.65881
$QUICK_{it}$	25,998	-13.06488	1.39330	382.75679	0.89649	2.33581
ROA_{it}	25,998	-0.01585	0.02841	0.29165	-0.02468	0.07382
$FOREIGN_{it}$	25,998	0.26090	0.15815	0.27809	0.00000	0.52200
GC_{it}	25,998	0.03631	0.00000	0.18707	0.00000	0.00000
YE_{it}	25,998	0.73579	1.00000	0.44092	0.00000	1.00000
$FIRSTYR_{it}$	25,998	0.05912	0.00000	0.23585	0.00000	0.00000

See Appendix for variable definitions. All continuous variables are Winsorized at 1% and 99%.

the portfolio share measure. It seems reasonable to assume that becoming an industry expert at the city level would be comparatively easier than being an industry expert at the national level. Accordingly, the larger overall means for industry specialization and prior industry experience at the city level seem reasonable.

2 Audit Quality Tests

2.1 National Level Audit Quality Tests

Tables 2 and 3 present the results of my audit quality hypotheses for the market and portfolio measures of industry specialization, respectively, at the national level. These regressions test the association between audit quality and industry specialization based on 38,365 available firm-year observations from 2003 to 2013. Industry specialization is evaluated using traditional market and portfolio measures alongside the prior industry experience measures constructed from these traditional measures (discussed in Chapter IV, Section 1 above). I also include interactions with industry characteristic variables to examine how the association between audit quality and prior industry experience varies with these characteristics.

Columns 1 through 4 of Table 2 present the results of the tests on **H1a** for the market share measures of industry specialization and prior industry experience. Column 1 presents the results for the audit quality regression using only the traditional market share measure of industry specialization ($MKTLEADER_{it}$). Consistent with prior studies, I find that industry specialization is positively associated with audit quality (t-statistic = 3.72). Column 2 represents the same regression, but using the prior industry experience measure ($ln(MKTCONSEC_{it})$) in place of the traditional measure. I find similar results using this measure, with a positive and significant coefficient on my measure of prior industry experience (t-statistic = 4.11). This result suggests that the prior industry experience measure captures the same type of information represented by the market share measure of industry specialization. However, there is a question of whether the

TABLE 2

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market Share

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
INTERCEPT	β_0	?	-0.19762 (-13.79)***	-0.19764 (-13.83)***	-0.19784 (-13.76)***	-0.19570 (-13.73)***	-0.19402 (-13.57)***	-0.19792 (-14.31)***	-0.19826 (-13.79)***	-0.19231 (-14.03)***
$MKTLEADER_{it}$	β_1	+	0.00935 (3.72)***		-0.00578 (-0.83)					
$ln(MKTCONSEC_{it})$	β_2	+		0.00532 (4.11)***	0.00786 (2.20)**		-0.00901 (-2.72)***	0.00568 (3.24)***	0.00642 (4.14)***	-0.01184 (-3.50)***
$MKTCONSEC_{it}$		+				0.00385 (5.11)***				
$MKTCONSEC^2_{it}$		-				-0.00022 (-5.29)***				
$ln(MKTCONSEC_{it}) * NUMCLIENTS_{it}$		+					0.00412 (3.97)***			0.00453 (4.39)***
$ln(MKTCONSEC_{it}) * MOX_i$		+						-0.00191 (-0.23)		0.01291 (1.54)
$ln(MKTCONSEC_{it}) * COMPLEX_i$		-							-0.00501 (-2.02)**	-0.00458 (-1.87)*
$SIZE_{it}$	β_3	+	0.00963 (2.95)***	0.00959 (2.92)***	0.00960 (2.93)***	0.00952 (2.90)***	0.00961 (2.93)***	0.00959 (2.92)***	0.00954 (2.91)***	0.00956 (2.90)***
CFO_{it}	β_4	+	0.28691 (3.51)***	0.28708 (3.51)***	0.28717 (3.51)***	0.28700 (3.51)***	0.28690 (3.51)***	0.28706 (3.51)***	0.28697 (3.51)***	0.28689 (3.51)***
$STDEARN_{it}$	β_5	-	-0.00004 (-5.00)***	-0.00004 (-5.02)***	-0.00004 (-5.03)***	-0.00004 (-5.03)***	-0.00004 (-5.02)***	-0.00004 (-5.02)***	-0.00004 (-4.94)***	-0.00004 (-4.96)***
LEV_{it}	β_6	+	0.01149 (0.28)	0.01134 (0.28)	0.01127 (0.28)	0.01141 (0.28)	0.01107 (0.27)	0.01134 (0.28)	0.01145 (0.28)	0.01111 (0.28)
$LOSS_{it}$	β_7	?	0.04243 (2.09)**	0.04239 (2.09)**	0.04239 (2.09)**	0.04242 (2.09)**	0.04253 (2.09)**	0.04239 (2.08)**	0.04247 (2.09)**	0.04263 (2.10)**
MB_{it}	β_8	-	-0.00005 (-1.51)	-0.00005 (-1.52)	-0.00005 (-1.52)	-0.00005 (-1.53)	-0.00005 (-1.52)	-0.00005 (-1.52)	-0.00005 (-1.52)	-0.00005 (-1.52)
$ALTMAN_{it}$	β_9	?	0.00524 (1.48)	0.00524 (1.48)	0.00524 (1.48)	0.00524 (1.48)	0.00524 (1.48)	0.00524 (1.48)	0.00525 (1.48)	0.00524 (1.48)

TABLE 2
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	+	0.03737 (2.09)**	0.03735 (2.09)**	0.03735 (2.09)**	0.03736 (2.09)**	0.03734 (2.09)**	0.03735 (2.09)**	0.03733 (2.09)**	0.03734 (2.09)**
$GROWTH_{it}$	β_{11}	-	-0.00016 (-1.21)	-0.00016 (-1.21)	-0.00016 (-1.21)	-0.00016 (-1.22)	-0.00016 (-1.21)	-0.00016 (-1.21)	-0.00016 (-1.20)	-0.00016 (-1.20)
$BIG4_{it}$	β_{12}	+	0.02839 (3.41)***	0.02816 (3.36)***	0.02840 (3.41)***	0.02847 (3.40)***	0.03109 (3.63)***	0.02813 (3.39)***	0.02855 (3.41)***	0.03196 (3.84)***
$TENURE_{it}$	β_{13}	?	0.00768 (3.34)***	0.00758 (3.31)***	0.00753 (3.32)***	0.00767 (3.35)***	0.00761 (3.33)***	0.00758 (3.33)***	0.00755 (3.30)***	0.00757 (3.33)***
$NUMCLIENTS_{it}$	β_{14}	-	-0.01513 (-5.46)***	-0.01508 (-5.44)***	-0.01503 (-5.38)***	-0.01539 (-5.56)***	-0.01719 (-5.67)***	-0.01507 (-5.51)***	-0.01523 (-5.51)***	-0.01761 (-6.07)***
MOX_i	β_{15}	+	0.07336 (11.32)***	0.07253 (11.30)***	0.07235 (11.33)***	0.07294 (11.42)***	0.07334 (11.45)***	0.07393 (8.53)***	0.07389 (11.45)***	0.06524 (7.59)***
$COMPLEX_i$	β_{16}	+	0.01338 (3.21)***	0.01358 (3.27)***	0.01360 (3.28)***	0.01412 (3.39)***	0.01471 (3.51)***	0.01364 (3.22)***	0.01604 (3.38)***	0.01668 (3.46)***
Adj R^2			0.1592	0.1593	0.1592	0.1593	0.1594	0.1592	0.1593	0.1594
Sample Size			38,365	38,365	38,365	38,365	38,365	38,365	38,365	38,365

See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.

prior industry experience measure provides any additional information above and beyond industry specialization. Column 3 addresses this question by estimating the regression with both the market share industry specialization and prior industry experience measures. While prior industry experience remains positive and significant (t-statistic = 2.20), the coefficient on industry specialization is no longer significant (t-statistic = -0.83). While the market share measures of industry specialization and prior industry experience do appear to capture similar aspects of information, it appears that the prior industry experience measure provides incrementally more information about the audit quality provided by industry experts. Column 4 tests the assertion of decreasing returns on industry experience by re-estimating a quadratic regression using regular and squared measures of prior industry experience ($MKTCONSEC_{it}$ and $MKTCONSEC_{it}^2$). The coefficients on both measures are significant, but in opposite directions (t-statistic = 5.11 and t-statistic = -5.29, respectively). This result suggests that the benefits of industry experience with respect to audit quality decrease over time. Solving for the first-order condition of the coefficients on prior industry experience, I find that the optimal level of industry experience with respect to audit quality is 8.75 years.[13]

Columns 5 through 8 of Table 2 present the results of my industry characteristics hypotheses on audit quality. Column 5 examines **H2a** on the number of clients audited by an auditor within an industry ($NUMCLIENTS_{it}$). While the association between audit quality and number of clients is consistently negative in all regressions, the interaction between prior industry experience and number of clients is positive (t-statistic = 3.97). The interpretation of this result is that reduced audit quality due to an auditor's overexposure within an industry (i.e. a large number of industry

[13] I solve for the first-order condition using the estimate from Brooks et al. (2011):

$$\text{First-Order Condition} = -\frac{\alpha_1}{2\alpha_2}$$

where α_1 is the coefficient on the measure of prior industry experience ($MKTCONSEC_{it}$ or $PORTCONSEC_{it}$), and α_2 is the coefficient on the squared measure of prior industry experience ($MKTCONSEC^2_{it}$ or $PORTCONSEC^2_{it}$).

clients) may be reduced when an auditor has previous experience within the industry. Column 6 looks at **H3a** and how the homogeneity of firms within an industry (MOX_i) is related to audit quality. While the coefficients for both prior industry experience and industry homogeneity are generally positive across the regressions, the coefficient on the interaction is negative and insignificant (t-statistic = -0.23). This suggests that while prior industry experience appears to improve audit quality, there does not appear to be an incremental improvement for industry expert auditors in homogenous industries. Column 7 tests **H4a** on accounting complexity ($COMPLEX_i$) based on the existence of AICPA industry guidance. The interaction between prior industry experience and accounting complexity is negative and significant (t-statistic = -2.02). This finding may imply that the prior industry experience is provides less benefits with respect to audit quality in industries where specific accounting guidance exists. Column 8 presents the results of the regression with all interacted variables. The coefficients for all interacted variables are fairly consistent with the results from the prior regressions.

Table 3 conducts the same array of tests using the portfolio share measures of industry specialization and prior industry experience, and the results are generally consistent with the results using the market share measures. Columns 1 and 2 represent Equation (2) regressions using industry specialization ($PORTLEADER_{it}$) and prior industry experience ($ln(PORTCONSEC_{it})$), respectively. While the association between audit quality and industry specialization is positive and significant (t-statistic = 2.87), the association between audit quality and prior industry experience is a bit stronger (t-statistic = 3.27). Furthermore, the coefficient on prior industry experience remains positive and significant after adding industry specialization to the regression (t-statistic = 2.04). Once again, this result suggests that the measure of prior industry experience may contain incrementally more information about auditors' capabilities with regard to the quality of services that they provide. Column 4 rounds out the portfolio measure tests on **H1a** by testing a quadratic estimate of the regression. The coefficients on the regular and

TABLE 3

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Portfolio Share

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
INTERCEPT	β_0	?	-0.19929	-0.19798	-0.19666	-0.19786	-0.18567	-0.19058	-0.19808	-0.17930
			(-13.81)***	(-13.75)***	(-13.82)***	(-13.64)***	(-12.58)***	(-14.13)***	(-13.60)***	(-12.86)***
PORTLEADER $_{it}$	β_1	+	0.01459		-0.02001					
			(2.87)***		(-1.19)					
ln(PORTCONSEC $_{it}$***)***	β_2	+		0.00972	0.01831		-0.04293	-0.00609	0.00959	-0.06437
				(3.27)***	(2.04)**		(-4.69)***	(-1.11)	(2.89)***	(-5.07)***
PORTCONSEC $_{it}$		+				0.00490				
						(3.70)***				
PORTCONSEC $^2_{it}$		-				-0.00020				
						(-2.33)**				
ln(PORTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+					0.01362			0.01475
							(7.31)***			(6.73)***
ln(PORTCONSECit) * MOX $_i$		+						0.08397		0.07961
								(4.15)***		(3.99)***
ln(PORTCONSEC $_{it}$***) * COMPLEX*** $_i$		-							0.00083	0.01293
									(0.16)	(2.10)**
SIZE $_{it}$	β_3	+	0.00952	0.00937	0.00941	0.00936	0.00943	0.00913	0.00938	0.00923
			(2.91)***	(2.82)***	(2.84)***	(2.81)***	(2.83)***	(2.72)***	(2.82)***	(2.75)***
CFO $_{it}$	β_4	+	0.28690	0.28678	0.28673	0.28670	0.28615	0.28708	0.28678	0.28634
			(3.51)***	(3.51)***	(3.51)***	(3.51)***	(3.51)***	(3.51)***	(3.51)***	(3.51)***
STDEARN $_{it}$	β_5	-	-0.00005	-0.00005	-0.00005	-0.00005	-0.00004	-0.00004	-0.00005	-0.00004
			(-5.25)***	(-5.42)***	(-5.32)***	(-5.44)***	(-5.36)***	(-5.15)***	(-5.42)***	(-5.10)***
LEV $_{it}$	β_6	+	0.00990	0.00876	0.00853	0.00860	0.00718	0.00931	0.00879	0.00818
			(0.25)	(0.22)	(0.21)	(0.22)	(0.18)	(0.23)	(0.22)	(0.20)
LOSS $_{it}$	β_7	?	0.04267	0.04293	0.04310	0.04287	0.04424	0.04342	0.04293	0.04469
			(2.10)**	(2.11)**	(2.11)**	(2.10)**	(2.18)**	(2.12)**	(2.11)**	(2.19)**
MB $_{it}$	β_8	-	-0.00005	-0.00005	-0.00005	-0.00005	-0.00005	-0.00004	-0.00005	-0.00004
			(-1.51)	(-1.55)	(-1.56)	(-1.53)	(-1.55)	(-1.47)	(-1.55)	(-1.45)
ALTMAN $_{it}$	β_9	?	0.00526	0.00526	0.00526	0.00526	0.00526	0.00527	0.00526	0.00527
			(1.48)	(1.48)	(1.48)	(1.48)	(1.48)	(1.48)	(1.48)	(1.48)

TABLE 3

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Portfolio Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	+	0.03757	0.03757	0.03749	0.03755	0.03725	0.03734	0.03757	0.03697
			(2.10)**	(2.10)**	(2.09)**	(2.10)**	(2.09)**	(2.09)**	(2.10)**	(2.07)**
$GROWTH_{it}$	β_{11}	-	-0.00016	-0.00016	-0.00016	-0.00016	-0.00016	-0.00016	-0.00016	-0.00016
			(-1.20)	(-1.20)	(-1.20)	(-1.20)	(-1.20)	(-1.20)	(-1.20)	(-1.2)
$BIG4_{it}$	β_{12}	+	0.03540	0.03655	0.03533	0.03661	0.03244	0.03497	0.03670	0.03288
			(4.40)***	(4.96)***	(4.38)***	(4.90)***	(4.54)***	(4.68)***	(4.88)***	(4.42)***
$TENURE_{it}$	β_{13}	?	0.00806	0.00815	0.00806	0.00821	0.00818	0.00812	0.00814	0.00805
			(3.48)***	(3.46)***	(3.49)***	(3.49)***	(3.47)***	(3.45)***	(3.45)***	(3.42)***
$NUMCLIENTS_{it}$	β_{14}	-	-0.01618	-0.01668	-0.01656	-0.01661	-0.01913	-0.01700	-0.01667	-0.01948
			(-5.82)***	(-6.39)***	(-6.21)***	(-6.43)***	(-6.81)***	(-6.60)***	(-6.36)***	(-6.99)***
MOX_i	β_{15}	+	0.07013	0.06725	0.06699	0.06757	0.06016	0.04840	0.06724	0.04146
			(10.91)***	(10.09)***	(9.97)***	(9.76)***	(9.16)***	(6.76)***	(10.11)***	(5.72)***
$COMPLEX_i$	β_{16}	+	0.01372	0.01443	0.01464	0.01426	0.01729	0.01422	0.01424	0.01440
			(3.28)***	(3.46)***	(3.52)***	(3.43)***	(4.04)***	(3.41)***	(3.35)***	(3.36)***
Adj R^2			0.1593	0.1595	0.1596	0.1595	0.1604	0.1598	0.1595	0.1607
Sample Size			38,365	38,365	38,365	38,365	38,365	38,365	38,365	38,365

See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.

squared measures of prior industry experience ($PORTCONSEC_{it}$ and $PORTCONSEC_{it}^2$) remain positive and negative, respectively; and both are significant (t-statistic = 3.70 and t-statistic = -2.33, respectively). Solving for the first-order condition of the regression, the optimal level of industry experience is 12.25 years.

Columns 5 through 8 of Table 3 present the results for the remaining audit quality hypotheses using the portfolio share measure of prior industry experience. Column 5 presents the results of the tests on **H2a**. Once again, the interaction between prior industry experience and number of industry clients is positive and significant (t-statistic = 7.31) despite the coefficient on number of clients being negative in all eight regressions. To the extent that audit quality is reduced as the number of industry clients for an auditor increases, it appears that prior industry experience may attenuate this association to some degree. The results for the tests on **H3a** portfolio share measure of prior industry experience (presented in Column 6) differ substantially from those using the market share measure. The coefficient on the interaction between prior industry experience and industry homogeneity is positive and significant (t-statistic = 4.15), suggesting that prior industry experience using the portfolio approach is associated with greater audit quality in industries where the member firms have similar operations. On the other hand, the results in Column 7 for the tests on **H4a** do not provide conclusive results regarding the association between audit quality and prior industry experience in industries with greater accounting complexity (t-statistic = 0.16). This does not suggest that prior industry experience isn't beneficial in industries with more complex accounting requirements. Rather, there is no discernible difference in the level of audit quality provided by industry experts from other industries. Finally, Column 8 presents the results of the regression containing interactions for all three industry characteristics. While the coefficient on the interaction between prior industry experience and accounting complexity becomes positive and significant in this regression (t-statistic = 2.10), the results for the remaining interactions are consistent with the individual interaction regressions.

The results of the tests for both measures of prior industry experience suggest that prior industry experience is associated with higher audit quality, at least at the national level. Despite the fact that the market share and portfolio share measures appear to capture different aspects of industry experience, the results for the tests on **H1a** are consistent in the finding that prior industry experience appears to lead to higher quality audits; and that these measures of experience provide information above and beyond traditional industry specialization measures. The results for the tests on **H2a** were also fairly consistent for both measures, suggesting that industry experience mitigates reductions in audit quality for auditors with a large number of clients within an industry. There is also some evidence to support **H3a** and **H4a**. However, the results for the tests on these hypotheses differed between the two measures of prior industry experience.

2.2 City Level Audit Quality Tests

Tables 4 and 5 provide the results for the tests of the audit quality hypotheses at the city level. The testing sample for these analyses is reduced to 9,033 firm-year observations, primarily due to the sample being restricted to the period from 2010 to 2013. Similar to the national level tests in Chapter V, Section 2.1, I evaluate prior industry experience using market share and portfolio share measures; and I interact these measures with the industry characteristic variables.

Columns 1 through 4 of Table 4 present the results for the market share measures of industry specialization and prior industry experience. The results in Column 1 are consistent with the national level tests and with prior research. Auditor industry specialization at the city level is positively and significantly associated with audit quality (t-statistic = 2.97). However, the findings for prior industry experience are substantially different using a city level measure. The coefficient on prior industry experience in Column 2 is negative and insignificant (t-statistic = -0.73); suggesting that the duration of industry experience does not influence the quality of an audit. The results of the regression in Column 3 including both the industry specialization and

TABLE 4

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market Share

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
INTERCEPT	β_0	?	-0.16731 (-17.83)***	-0.16442 (-16.76)***	-0.16444 (-16.79)***	-0.17046 (-17.32)***	-0.15650 (-16.63)***	-0.17841 (-13.41)***	-0.15942 (-14.49)***	-0.16362 (-12.14)***
$MKTLEADER_{it}$	β_1	+	0.01053 (2.97)***		0.01071 (2.95)***					
$ln(MKTCONSEC_{it})$	β_2	+		-0.00243 (-0.73)	-0.00295 (-0.87)		-0.00623 (-2.17)**	0.00426 (0.81)	-0.00481 (-1.20)	-0.00281 (-0.55)
$MKTCONSEC_{it}$	β_2	+				0.00224 (1.12)				
$MKTCONSEC^2_{it}$	β_2	-				-0.00020 (-1.44)				
$ln(MKTCONSEC_{it}) * NUMCLIENTS_{it}$	β_2	+					0.01260 (1.32)			0.01108 (1.11)
$ln(MKTCONSEC_{it}) * MOX_i$	β_2	+						-0.03712 (-2.52)**		-0.02459 (-1.68)*
$ln(MKTCONSEC_{it}) * COMPLEX_i$	β_2	-							0.00963 (1.36)	0.00595 (0.71)
$SIZE_{it}$	β_3	+	0.00776 (5.93)***	0.00808 (6.17)***	0.00777 (5.94)***	0.00816 (6.20)***	0.00811 (6.24)***	0.00805 (6.14)***	0.00813 (6.11)***	0.00812 (6.11)***
CFO_{it}	β_4	+	0.07057 (2.89)***	0.07013 (2.89)***	0.07064 (2.90)***	0.07012 (2.89)***	0.06962 (2.84)***	0.06991 (2.88)***	0.06981 (2.89)***	0.06934 (2.84)***
$STDEARN_{it}$	β_5	-	-0.00001 (-1.53)	-0.00001 (-1.47)	-0.00001 (-1.54)	-0.00001 (-1.49)	-0.00001 (-1.48)	-0.00001 (-1.43)	-0.00001 (-1.53)	-0.00001 (-1.51)
LEV_{it}	β_6	+	-0.06127 (-0.91)	-0.06111 (-0.90)	-0.06151 (-0.91)	-0.06137 (-0.91)	-0.06052 (-0.89)	-0.06077 (-0.90)	-0.06076 (-0.90)	-0.06015 (-0.89)
$LOSS_{it}$	β_7	?	-0.00561 (-0.76)	-0.00566 (-0.77)	-0.00570 (-0.78)	-0.00559 (-0.76)	-0.00560 (-0.76)	-0.00583 (-0.79)	-0.00559 (-0.76)	-0.00567 (-0.77)
MB_{it}	β_8	-	-0.00002 (-0.78)	-0.00002 (-0.75)	-0.00002 (-0.76)	-0.00002 (-0.76)	-0.00002 (-0.74)	-0.00002 (-0.76)	-0.00002 (-0.75)	-0.00002 (-0.75)
$ALTMAN_{it}$	β_9	?	0.00378 (4.63)***	0.00376 (4.61)***	0.00379 (4.62)***	0.00376 (4.61)***	0.00378 (4.66)***	0.00376 (4.61)***	0.00377 (4.62)***	0.00378 (4.66)***

TABLE 4
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	+	0.02290	0.02293	0.02288	0.02284	0.02246	0.02295	0.02289	0.02251
			(1.32)	(1.32)	(1.32)	(1.31)	(1.31)	(1.32)	(1.31)	(1.32)
$GROWTH_{it}$	β_{11}	-	-0.00250	-0.00249	-0.00250	-0.00249	-0.00248	-0.00249	-0.00248	-0.00248
			(-1.43)	(-1.42)	(-1.43)	(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)
$BIG4_{it}$	β_{12}	+	0.01563	0.01990	0.01749	0.01999	0.01767	0.01960	0.01952	0.01751
			(1.94)*	(2.24)**	(2.07)**	(2.25)**	(1.93)*	(2.2)**	(2.20)**	(1.92)*
$TENURE_{it}$	β_{13}	?	0.00826	0.00932	0.00892	0.00991	0.00962	0.00957	0.00946	0.00983
			(3.77)***	(3.75)***	(3.62)***	(3.89)***	(3.93)***	(3.85)***	(3.80)***	(4.01)***
$NUMCLIENTS_{it}$	β_{14}	-	-0.00862	-0.00921	-0.00805	-0.00876	-0.03957	-0.00946	-0.00937	-0.03620
			(-4.06)***	(-4.13)***	(-3.48)***	(-4)***	(-1.68)*	(-4.22)***	(-4.13)***	(-1.48)
MOX_i	β_{15}	+	0.07816	0.08158	0.07823	0.08154	0.08152	0.15866	0.08056	0.13196
			(10.66)***	(10.59)***	(10.65)***	(10.6)***	(10.59)***	(4.93)***	(10.59)***	(4.09)***
$COMPLEX_i$	β_{16}	+	0.00843	0.00708	0.00856	0.00686	0.00735	0.00720	-0.01390	-0.00558
			(2.50)**	(2.09)**	(2.53)**	(2.03)**	(2.14)**	(2.12)**	(-0.82)	(-0.28)
Adj R^2			0.1593	0.1583	0.1593	0.1586	0.1591	0.1586	0.1586	0.1592
Sample Size			9,033	9,033	9,033	9,033	9,033	9,033	9,033	9,033

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

prior industry experience measures are consistent with this result. The coefficient on the industry specialization measure remains positive and significant (t-statistic = 2.95) and the coefficient on the prior industry experience measure remains negative and insignificant (t-statistic = -0.87). The results of the quadratic regression in Column 4 do imply decreasing returns on industry experience with regard to audit quality. However, neither the regular nor the squared measure coefficients are significant (t-statistic = 1.12 and t-statistic = -1.44, respectively). Taken together with the national level findings, these results indicate that prior industry experience is only relevant to audit quality at the national level. While industry specialization still appears to improve audit quality, the duration of prior industry experience does not appear relevant at the city level.

Columns 5 through 8 present the results of the remaining hypotheses using the city level market share measure of prior industry experience. The interaction between prior industry experience and number of industry clients in Column 5 is positive but insignificant (t-statistic = 1.32), suggesting that the negative association between audit quality and number of clients does not vary based on an auditor's industry experience. However, there is a significant interaction between prior industry experience and industry homogeneity in Column 6 (t-statistic = -2.52). Curiously, the coefficient on the interaction is negative; implying that audit quality in more homogenous industries is actually *reduced* for clients of auditors with prior industry experience. This result is somewhat surprising and difficult to interpret. While it is reasonable that prior experience may not improve overall audit quality, it is difficult to fathom any setting where experience would reduce audit quality. The results in Column 7 show that the interaction between prior industry experience and industry accounting complexity is positive but insignificant (t-statistic = 1.36). This result is more consistent with the explanation that prior industry experience does not improve audit quality (at least how prior industry experience is measured in these regressions).

Column 8 contains the result of all three interactions within the same regression. The results are consistent with those of the previous regressions.

The results for the tests using the portfolio measure of prior industry experience in Table 5 are comparable to those of the market share measure. Columns 1 through 4 of Table 5 present the tests on **H1a** using the city level portfolio measure. Column 1 provides evidence that industry specialization remains positive and significantly associated with audit quality (t-statistic = 2.39). However, the coefficient on prior industry specialization is negative and not significantly associated with audit quality in Column 2 (t-statistic = -1.05). When industry specialization and prior industry experience are tested jointly, the coefficient on industry specialization remains positive and significant (t-statistic = 2.45) while the coefficient on prior industry experience remains negative and insignificant (t-statistic = -1.24). In the quadratic regression estimation in Colum 4, neither the regular or squared measure are significant (t-statistic = 0.46 and t-statistic = -0.88, respectively). These results reinforce the findings from the city level market share tests – prior industry experience does not appear to influence overall audit quality at the city level.

The results of the tests on the remaining hypotheses in Columns 5 through 8 of Table 5 are fairly similar to the city level market share tests. The associations between audit quality and the industry characteristic variables are generally significant and in the predicted directions for the eight regressions. However, none of the interactions with prior industry experience provide a significant result. Aside from the lack of overall significance of prior industry experience at the city level, none of the results in these industry settings provide any evidence of prior industry experience having any bearing in these settings.

The major takeaway from the city level audit quality tests is that prior industry experience does not appear to be a major factor at the city level. The results in Columns 1 and 2 of Tables 4 and 5 provide evidence that industry specialization and prior industry experience represent different

TABLE 5

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Portfolio Share

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
INTERCEPT	β_0	?	-0.16870 (-18.12)***	-0.16347 (-16.59)***	-0.16481 (-16.90)***	-0.16798 (-17.49)***	-0.15692 (-16.53)***	-0.17095 (-13.52)***	-0.15920 (-14.77)***	-0.15810 (-11.93)***
PORTLEADER $_{it}$	β_1	+	0.00814 (2.39)**		0.00853 (2.45)**					
ln(PORTCONSEC $_{it}$***)***	β_2	+		-0.00317 (-1.05)	-0.00379 (-1.24)		-0.00614 (-2.28)**	0.00052 (0.11)	-0.00520 (-1.45)	-0.00553 (-1.13)
PORTCONSEC $_{it}$		+				0.00075 (0.46)				
PORTCONSEC $^2_{it}$		-				-0.00009 (-0.88)				
ln(PORTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+					0.01114 (1.31)			0.01010 (1.15)
ln(PORTCONSEC $_{it}$***) * MOX*** $_i$		+						-0.01975 (-1.59)		-0.00942 (-0.74)
ln(PORTCONSEC $_{it}$***) * COMPLEX*** $_i$		-							0.00820 (1.32)	0.00575 (0.81)
SIZE $_{it}$	β_3	+	0.00754 (6.01)***	0.00809 (6.18)***	0.00754 (6.01)***	0.00815 (6.21)***	0.00811 (6.21)***	0.00808 (6.17)***	0.00813 (6.12)***	0.00813 (6.11)***
CFO $_{it}$	β_4	+	0.06985 (2.87)***	0.07015 (2.89)***	0.06992 (2.88)***	0.07022 (2.90)***	0.06973 (2.85)***	0.07006 (2.89)***	0.06982 (2.88)***	0.06950 (2.85)***
STDEARN $_{it}$	β_5	-	-0.00001 (-1.68)*	-0.00001 (-1.46)	-0.00001 (-1.69)*	-0.00001 (-1.46)	-0.00001 (-1.49)	-0.00001 (-1.44)	-0.00001 (-1.52)	-0.00001 (-1.52)
LEV $_{it}$	β_6	+	-0.06148 (-0.91)	-0.06111 (-0.90)	-0.06174 (-0.91)	-0.06126 (-0.91)	-0.06073 (-0.90)	-0.06095 (-0.90)	-0.06093 (-0.90)	-0.06056 (-0.89)
LOSS $_{it}$	β_7	?	-0.00544 (-0.74)	-0.00568 (-0.77)	-0.00555 (-0.75)	-0.00565 (-0.77)	-0.00554 (-0.76)	-0.00577 (-0.79)	-0.00561 (-0.76)	-0.00555 (-0.75)
MB $_{it}$	β_8	-	-0.00002 (-0.73)	-0.00002 (-0.75)	-0.00002 (-0.71)	-0.00002 (-0.75)	-0.00002 (-0.74)	-0.00002 (-0.75)	-0.00002 (-0.75)	-0.00002 (-0.75)
ALTMAN $_{it}$	β_9	?	0.00379 (4.63)***	0.00376 (4.61)***	0.00380 (4.63)***	0.00377 (4.61)***	0.00377 (4.65)***	0.00376 (4.61)***	0.00377 (4.62)***	0.00377 (4.65)***

TABLE 5
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Portfolio Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)	(8) Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	+	0.02302	0.02291	0.02300	0.02289	0.02254	0.02292	0.02288	0.02255
			(1.32)	(1.31)	(1.32)	(1.31)	(1.31)	(1.32)	(1.31)	(1.31)
$GROWTH_{it}$	β_{11}	-	-0.00247	-0.00249	-0.00248	-0.00249	-0.00248	-0.00249	-0.00248	-0.00248
			(-1.41)	(-1.42)	(-1.41)	(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)
$BIG4_{it}$	β_{12}	+	0.02162	0.01988	0.02364	0.02017	0.01793	0.01964	0.01958	0.01779
			(2.43)**	(2.25)**	(2.54)**	(2.27)**	(2.00)**	(2.23)**	(2.22)**	(1.98)**
$TENURE_{it}$	β_{13}	?	0.00865	0.00951	0.00954	0.00974	0.00973	0.00962	0.00964	0.00985
			(3.93)***	(3.90)***	(3.91)***	(3.94)***	(4.03)***	(3.95)***	(3.95)***	(4.07)***
$NUMCLIENTS_{it}$	β_{14}	-	-0.01103	-0.00898	-0.01027	-0.00855	-0.03620	-0.00915	-0.00915	-0.03387
			(-4.74)***	(-4.08)***	(-4.32)***	(-3.80)***	(-1.70)*	(-4.14)***	(-4.08)***	(-1.55)
MOX_i	β_{15}	+	0.08005	0.08146	0.07998	0.08145	0.08114	0.12174	0.08064	0.09980
			(10.59)***	(10.61)***	(10.59)***	(10.62)***	(10.55)***	(4.53)***	(10.59)***	(3.59)***
$COMPLEX_i$	β_{16}	+	0.00682	0.00713	0.00699	0.00723	0.00707	0.00713	-0.01088	-0.00556
			(2.02)**	(2.11)**	(2.06)**	(2.14)**	(2.10)**	(2.11)**	(-0.72)	(-0.33)
Adj R^2			0.1588	0.1584	0.1589	0.1584	0.1589	0.1584	0.1585	0.1589
Sample Size			9,033	9,033	9,033	9,033	9,033	9,033	9,033	9,033

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

aspects of industry expertise, since the industry specialization regressions provided markedly different results from the prior industry experience regressions. However, it is unclear why industry specialization appears to be associated with audit quality while prior industry experience does not. The finding that prior industry experience is associated with audit quality at the national level (even moreso than industry specialization) raises some interesting questions. One possible explanation is that industry expertise is more relevant at the national level, while client-specific expertise is more relevant at the city level. However, it is not certain whether this explanation is consistent with these findings given that industry specialization is still strongly associated with audit quality at the city level.

3 Audit Fee Tests

3.1 National Level Audit Fee Tests

Tables 6 and 7 present the results of the national level regressions on audit fees. These tests examine the association between audit fees charged to audit clients and industry expertise using 25,998 observations during the period from 2007 to 2013. While the audit fee model differs substantially form the audit quality model (see Chapter IV, Section 4 above), these tests examine the associations with the same industry specialization, prior industry experience, and industry characteristics variables that were observed in the audit quality regressions.

Columns 1 through 3 of Table 6 present the results of the audit fee regressions for **H1b** using the market share measures of industry specialization and prior industry experience. Column 1 represents the audit fee regression with just the industry specialization variable. The positive and significant coefficient on industry specialization (t-statistic = 3.83) suggests that industry specialist auditor can demand a premium for their expertise. I note a similar result in Column 2, where the coefficient on prior industry experience is also positive and significant (t-statistic =

TABLE 6

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Market Share

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
INTERCEPT	β_0	?	9.76033 (272.02)***	9.75881 (272.01)***	9.76060 (272.16)***	9.74640 (270.35)***	9.73993 (269.08)***	9.75455 (272.23)***	9.71101 (265.14)***
MKTLEADER $_{it}$	β_1	+	0.04429 (3.83)***		0.08773 (3.21)***				
ln(MKTCONSEC $_{it}$***)***	β_2	+		0.01494 (2.79)***	-0.02134 (-1.68)*	0.06450 (4.11)***	0.03972 (4.26)***	0.01975 (3.21)***	0.12314 (5.75)***
ln(MKTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+				-0.01436 (-3.18)***			-0.02005 (-4.18)***
ln(MKTCONSEC $_{it}$***) * MOX*** $_i$		+					-0.13090 (-3.07)***		-0.17520 (-3.89)***
ln(MKTCONSEC $_{it}$***) * COMPLEX*** $_i$		+						-0.02321 (-2.05)**	-0.02830 (-2.51)**
ASSETS $_{it}$	β_3	+	0.47794 (128.93)***	0.47797 (128.70)***	0.47822 (128.75)***	0.47802 (128.68)***	0.47814 (128.72)***	0.47800 (128.74)***	0.47831 (128.72)***
BUSSEG $_{it}$	β_4	+	0.23942 (25.76)***	0.23977 (25.80)***	0.23925 (25.74)***	0.23978 (25.80)***	0.23919 (25.72)***	0.23975 (25.80)***	0.23897 (25.70)***
CATA $_{it}$	β_5	+	0.86307 (35.49)***	0.86306 (35.51)***	0.86155 (35.47)***	0.85840 (35.23)***	0.86202 (35.47)***	0.86447 (35.54)***	0.85689 (35.13)***
QUICK $_{it}$	β_6	-	-0.00011 (-4.27)***	-0.00011 (-4.28)***	-0.00011 (-4.31)***	-0.00011 (-4.12)***	-0.00011 (-4.68)***	-0.00011 (-4.45)***	-0.00012 (-4.84)***
LEV $_{it}$	β_7	+	0.02028 (1.26)	0.01976 (1.23)	0.02029 (1.26)	0.01888 (1.17)	0.01965 (1.22)	0.02049 (1.27)	0.01928 (1.20)
ROA $_{it}$	β_8	-	-0.15936 (-5.35)***	-0.15873 (-5.34)***	-0.16014 (-5.36)***	-0.15849 (-5.33)***	-0.15995 (-5.37)***	-0.15897 (-5.34)***	-0.16034 (-5.37)***
FOREIGN $_{it}$	β_9	+	0.30971 (12.84)***	0.31039 (12.85)***	0.30824 (12.75)***	0.30827 (12.78)***	0.31064 (12.85)***	0.31000 (12.84)***	0.30729 (12.74)***

TABLE 6
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Market Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
GC_{it}	β_{10}	+	0.26913 (9.93)***	0.26870 (9.91)***	0.27018 (9.97)***	0.26948 (9.96)***	0.26872 (9.91)***	0.26899 (9.92)***	0.27016 (9.99)***
YE_{it}	β_{11}	-	-0.02713 (-2.61)***	-0.02752 (-2.65)***	-0.02656 (-2.56)**	-0.02720 (-2.62)***	-0.02800 (-2.69)***	-0.02734 (-2.63)***	-0.02751 (-2.65)***
$LOSS_{it}$	β_{12}	+	0.16959 (13.20)***	0.16995 (13.23)***	0.16932 (13.17)***	0.16916 (13.17)***	0.16923 (13.17)***	0.17080 (13.29)***	0.16891 (13.15)***
$FIRSTYR_{it}$	β_{13}	-	-0.34551 (-12.51)***	-0.34573 (-12.52)***	-0.34552 (-12.51)***	-0.34513 (-12.50)***	-0.34517 (-12.51)***	-0.34567 (-12.52)***	-0.34409 (-12.47)***
$BIG4_{it}$	β_{14}	+	0.13733 (9.50)***	0.14136 (9.80)***	0.13671 (9.47)***	0.12779 (8.69)***	0.13824 (9.58)***	0.14360 (9.93)***	0.12098 (8.15)***
$NUMCLIENTS_{it}$	β_{15}	-	-0.02981 (-6.43)***	-0.02943 (-6.36)***	-0.02985 (-6.44)***	-0.02056 (-4.00)***	-0.02838 (-6.13)***	-0.03057 (-6.52)***	-0.01702 (-3.23)***
MOX_i	β_{16}	-	-0.75564 (-15.26)***	-0.75778 (-15.30)***	-0.75054 (-15.16)***	-0.75483 (-15.22)***	-0.65605 (-11.94)***	-0.75280 (-15.26)***	-0.61143 (-10.94)***
$COMPLEX_i$	β_{17}	+	0.13821 (12.29)***	0.13777 (12.24)***	0.13700 (12.18)***	0.13154 (11.49)***	0.14178 (12.64)***	0.14938 (11.72)***	0.14859 (11.58)***
Adj R^2			0.6205	0.6204	0.6205	0.6205	0.6205	0.6204	0.6208
Sample Size			25,998	25,998	25,998	25,998	25,998	25,998	25,998

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

2.79). These results support the view that auditors who attain specialization via market dominance can charge greater fees for audit services. However, it is not apparent whether these measures represent different aspects of industry expertise as it relates to audit fees. Column 3 contains the joint regression with both industry specialization and prior industry experience. Both variables remain significant, but prior industry experience becomes negative (t-statistic = 3.21 and t-statistic = -1.68, respectively). These results are somewhat difficult to interpret. While it appears that auditors with industry expertise can demand audit fee premiums, it seems that these premiums are reduced with the duration of the prior industry experience.

Columns 4 through 7 of table 6 present the results of the audit fee regressions for the industry characteristics hypotheses. Column 4 examines **H2b** regarding how the association between audit fees and prior industry experience might vary based on number of industry clients. Consistent with recent prior research that suggests that audit fees for industry specialist auditors may decrease as the number of clients increases (Fung et al. 2012; Cahan et al. 2013), I find a negative and significant coefficient on the interaction between prior industry experience and number of clients (t-statistic = -3.18). This result stands at odds with my hypothesized prediction, and suggests that auditors with a large number of clients can realize further reductions in audit fees if they possess prior industry experience. The results for the test on **H3b** are presented in Column 5. I find negative and significant results on the interaction between prior industry experience and industry homogeneity (t-statistic = -3.07). Once again, this result goes against my hypothesized prediction, and suggests that prior industry experience can further reduce audit fees in industries with homogenous firms. Column 6 provides the results for the test of **H4b**. The coefficient on the interaction between prior industry experience and accounting complexity is negative and significant (t-statistic = -2.05). Based on this result, it appears that the association between audit fees and accounting complexity differs for clients of auditors with prior industry experience. One possible interpretation of this result is that auditors with prior industry experience require less

effort to understand and utilize AICPA industry guidance in more complex industries. Column 7 provides the results for the regression that includes all three interactions. The result for this regression is consistent with the prior regressions.

Columns 1 through 3 of Table 7 present the results of the regressions for **H1b** using the portfolio measures of industry specialization and prior industry experience. The results for these tests provide an interesting contrast to the results for the market share tests. The independent regressions in Columns 1 and 2 provide similar results in that industry specialization and prior industry experience are both significant. However, the sign on the coefficients is negative rather than positive (t-statistic = -11.22 and t-statistic = -13.31, respectively). These results support the view that auditors can pass on the benefits of their industry expertise to their clients in the form of lower audit fees. However, when both industry specialization and prior industry experience are considered jointly in the regression presented in Column 3, the sign on the industry specialization coefficient switches to positive, though both coefficients remain highly significant (t-statistic = 3.21 and t-statistic = -8.54, respectively). This finding supports the result in the market share tests that auditors demand fee premiums based on their industry expertise, but that these premiums decrease with the duration of prior industry experience.

Columns 4 through 7 of Table 7 present the tests on the remaining hypotheses. The results in Columns 4 and 5 are consistent with the market share results. The interactions in both regressions are negative and significant (t-statistic = -9.40 and t-statistic = -7.43, respectively), suggesting that prior industry experience provides additional efficiencies in these industries. In Column 6, however, the coefficient on the interaction between prior industry experience and accounting complexity is positive and significant (t-statistic = 8.25). This finding stands at odds with the market share tests, and indicates that auditors with prior industry experience may be able to demand higher audit fees in industries with specialized accounting guidance (presumably due to

TABLE 7

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Portfolio Share

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
INTERCEPT	β_0	?	9.75576 (272.72)***	9.74395 (272.62)***	9.73868 (271.60)***	9.69465 (268.10)***	9.68809 (266.76)***	9.71769 (271.91)***	9.64982 (264.31)***
PORTLEADER $_{it}$	β_1	+	-0.17533 (-11.22)***		0.11392 (3.21)***				
ln(PORTCONSEC $_{it}$***)***	β_2	+		-0.10312 (-13.31)***	-0.14972 (-8.54)***	0.15296 (5.72)***	0.02124 (1.30)	-0.12099 (-14.03)***	0.19017 (6.21)***
ln(PORTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+				-0.06608 (-9.40)***			-0.05230 (-6.88)***
ln(PORTCONSEC $_{it}$***) * MOX*** $_i$		+					-0.64209 (-7.43)***		-0.50661 (-5.91)***
ln(PORTCONSEC $_{it}$***) * COMPLEX*** $_i$		+						0.13070 (8.25)***	0.05492 (3.26)***
ASSETS $_{it}$	β_3	+	0.48436 (130.66)***	0.48676 (130.53)***	0.48673 (130.59)***	0.48677 (130.99)***	0.48805 (130.73)***	0.48735 (130.65)***	0.48803 (131.23)***
BUSSEG $_{it}$	β_4	+	0.24152 (26.00)***	0.24294 (26.13)***	0.24332 (26.15)***	0.24302 (26.14)***	0.24468 (26.28)***	0.24373 (26.21)***	0.24470 (26.28)***
CATA $_{it}$	β_5	+	0.82104 (33.71)***	0.79162 (32.48)***	0.78595 (32.25)***	0.75898 (31.13)***	0.77616 (31.78)***	0.78634 (32.25)***	0.75138 (30.85)***
QUICK $_{it}$	β_6	-	-0.00011 (-4.17)***	-0.00011 (-3.95)***	-0.00010 (-3.89)***	-0.00010 (-3.75)***	-0.00010 (-3.51)***	-0.00010 (-3.82)***	-0.00010 (-3.41)***
LEV $_{it}$	β_7	+	0.01864 (1.17)	0.01636 (1.03)	0.01534 (0.96)	0.01341 (0.85)	0.00847 (0.53)	0.01637 (1.03)	0.00781 (0.49)
ROA $_{it}$	β_8	-	-0.16911 (-5.49)***	-0.17011 (-5.47)***	-0.16859 (-5.42)***	-0.16847 (-5.48)***	-0.17296 (-5.57)***	-0.16811 (-5.39)***	-0.17022 (-5.53)***
FOREIGN $_{it}$	β_9	+	0.27320 (11.37)***	0.24327 (10.05)***	0.23674 (9.71)***	0.21617 (8.88)***	0.23070 (9.45)***	0.23147 (9.52)***	0.20695 (8.46)***

TABLE 7
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Portfolio Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
GC_{it}	β_{10}	+	0.27813 (10.29)***	0.27870 (10.29)***	0.27737 (10.23)***	0.27743 (10.26)***	0.28160 (10.45)***	0.28451 (10.50)***	0.28242 (10.48)***
YE_{it}	β_{11}	-	-0.01669 (-1.61)	-0.01389 (-1.34)	-0.01469 (-1.42)	-0.01646 (-1.60)	-0.01149 (-1.11)	-0.01078 (-1.04)	-0.01273 (-1.23)
$LOSS_{it}$	β_{12}	+	0.16513 (12.77)***	0.16126 (12.45)***	0.16050 (12.39)***	0.15194 (11.77)***	0.15379 (11.88)***	0.15917 (12.30)***	0.14711 (11.40)***
$FIRSTYR_{it}$	β_{13}	-	-0.33704 (-12.14)***	-0.33849 (-12.19)***	-0.34096 (-12.26)***	-0.33921 (-12.20)***	-0.33619 (-12.14)***	-0.33903 (-12.21)***	-0.33747 (-12.16)***
$BIG4_{it}$	β_{14}	+	0.08279 (5.67)***	0.06235 (4.22)***	0.06617 (4.49)***	0.08201 (5.55)***	0.07268 (4.95)***	0.08952 (5.99)***	0.09748 (6.54)***
$NUMCLIENTS_{it}$	β_{15}	-	-0.00928 (-2.04)**	0.00027 (0.06)	0.00076 (0.17)	0.01652 (3.54)***	0.00572 (1.24)	0.00244 (0.54)	0.01834 (3.93)***
MOX_i	β_{16}	-	-0.69087 (-13.99)***	-0.65393 (-13.24)***	-0.64914 (-13.14)***	-0.59923 (-12.09)***	-0.48970 (-9.63)***	-0.64114 (-12.96)***	-0.47569 (-9.33)***
$COMPLEX_i$	β_{17}	+	0.11055 (9.98)***	0.09921 (8.93)***	0.09874 (8.88)***	0.07888 (7.00)***	0.09335 (8.35)***	0.07001 (5.91)***	0.06623 (5.57)***
Adj R^2			0.6225	0.6239	0.6241	0.6256	0.6254	0.6247	0.6268
Sample Size			25,998	25,998	25,998	25,998	25,998	25,998	25,998

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

their enhanced expertise). Column 7 contains the regression with all three interactions. The results in this column are consistent with the results from the prior regressions.

The results in these two tables stand somewhat at odds with one another. The tests using the market share measure of prior industry experience suggest that industry expertise can increase audit fees, while the tests using the portfolio share measure imply the opposite. However, these results are not necessarily contradictory. Rather, they support the notion that these measures capture different aspects of industry expertise. The market share measure seems to capture auditor industry dominance, while the portfolio share measure appears to reflect auditor efficiencies within an industry. The results of the earlier audit quality tests indicate that both types of expertise result in improvements in overall audit quality. However, the extent to which prior industry experience acts as a determinant in audit pricing decisions appears to depend upon which measure of prior industry experience is used.

3.2 City Level Audit Fee Tests

Tables 8 and 9 present the results of the audit fee tests at the city level. Similar to the city level audit quality tests, the sample size and period is reduced due data requirements. The city level audit fee tests were performed on 10,995 firm-year observations during the period from 2010 to 2013. Most of the reduction in the sample from the national level tests is due to the reduced sample period.

The first three columns of Table 8 provide the results of the city level audit fee tests on **H1b** using the market share measures of industry expertise. Just as in the previous tables, Column 1 presents the results of the regression with just the market share measure of industry specialization. I find a significant result for the association between audit fees and industry specialization (t-statistic = -3.46). However, in contrast to the national level findings, the coefficient is negative rather than positive; suggesting that industry specialization is associated

TABLE 8

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Market Share

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
INTERCEPT	β_0	?	9.83871 (181.74)***	9.78141 (171.91)***	9.77724 (171.79)***	9.78023 (167.57)***	9.74712 (140.24)***	9.78578 (167.28)***	9.74660 (128.63)***
MKTLEADER $_{it}$	β_1	+	-0.05501 (-3.46)***		-0.06089 (-3.82)***				
ln(MKTCONSEC $_{it}$***)***	β_2	+		0.05062 (3.52)***	0.05479 (3.80)***	0.05115 (3.41)***	0.06885 (2.98)***	0.04848 (3.07)***	0.06895 (2.58)***
ln(MKTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+				-0.00169 (-0.10)			-0.00459 (-0.26)
ln(MKTCONSEC $_{it}$***) * MOX*** $_i$		+					-0.09883 (-0.94)		-0.09796 (-0.89)
ln(MKTCONSEC $_{it}$***) * COMPLEX*** $_i$		+						0.00843 (0.35)	0.00461 (0.18)
ASSETS $_{it}$	β_3	+	0.45283 (78.39)***	0.44824 (77.77)***	0.45132 (77.93)***	0.44823 (77.81)***	0.44831 (77.72)***	0.44830 (77.84)***	0.44830 (77.84)***
BUSSEG $_{it}$	β_4	+	0.25088 (16.45)***	0.24955 (16.39)***	0.24960 (16.41)***	0.24957 (16.39)***	0.24950 (16.38)***	0.24950 (16.38)***	0.24951 (16.38)***
CATA $_{it}$	β_5	+	0.80970 (21.2)***	0.80017 (21.00)***	0.80434 (21.10)***	0.80022 (21.01)***	0.79918 (20.98)***	0.80036 (21.00)***	0.79943 (20.97)***
QUICK $_{it}$	β_6	-	-0.00006 (-5.72)***	-0.00006 (-5.48)***	-0.00006 (-5.64)***	-0.00006 (-5.47)***	-0.00006 (-5.68)***	-0.00006 (-5.44)***	-0.00006 (-5.63)***
LEV $_{it}$	β_7	+	0.02084 (1.54)	0.02230 (1.70)*	0.02306 (1.75)*	0.02232 (1.70)*	0.02241 (1.71)*	0.02239 (1.70)*	0.02252 (1.71)*
ROA $_{it}$	β_8	-	-0.07873 (-1.88)*	-0.07763 (-1.90)*	-0.07927 (-1.92)*	-0.07759 (-1.90)*	-0.07809 (-1.91)*	-0.07808 (-1.91)*	-0.07824 (-1.92)*
FOREIGN $_{it}$	β_9	+	0.49927 (12.44)***	0.51388 (12.92)***	0.49866 (12.45)***	0.51386 (12.92)***	0.51347 (12.92)***	0.51385 (12.92)***	0.51341 (12.92)***

TABLE 8
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Market Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
GC_{it}	β_{10}	+	0.28734 (5.82)***	0.28677 (5.84)***	0.28931 (5.87)***	0.28665 (5.84)***	0.28800 (5.87)***	0.28613 (5.82)***	0.28733 (5.84)***
YE_{it}	β_{11}	-	0.05806 (3.74)***	0.06119 (3.94)***	0.06251 (4.03)***	0.06121 (3.94)***	0.06154 (3.96)***	0.06115 (3.93)***	0.06157 (3.96)***
$LOSS_{it}$	β_{12}	+	0.18553 (9.66)***	0.19026 (9.95)***	0.18985 (9.92)***	0.19026 (9.95)***	0.18989 (9.92)***	0.19023 (9.94)***	0.18986 (9.92)***
$FIRSTYR_{it}$	β_{13}	-	-0.40594 (-8.52)***	-0.37449 (-7.72)***	-0.37340 (-7.71)***	-0.37448 (-7.72)***	-0.37390 (-7.71)***	-0.37436 (-7.72)***	-0.37380 (-7.71)***
$BIG4_{it}$	β_{14}	+	0.21667 (11.30)***	0.16410 (7.31)***	0.17647 (7.76)***	0.16448 (7.19)***	0.16249 (7.24)***	0.16390 (7.30)***	0.16342 (7.15)***
$NUMCLIENTS_{it}$	β_{15}	-	-0.05746 (-6.79)***	-0.06461 (-7.92)***	-0.07045 (-8.31)***	-0.06059 (-1.48)	-0.06537 (-8.02)***	-0.06476 (-7.93)***	-0.05453 (-1.28)
MOX_i	β_{16}	-	-0.75306 (-10.82)***	-0.76994 (-11.07)***	-0.75627 (-10.89)***	-0.76997 (-11.07)***	-0.57412 (-2.43)**	-0.77035 (-11.07)***	-0.57617 (-2.34)**
$COMPLEX_i$	β_{17}	+	0.14160 (8.29)***	0.14830 (8.69)***	0.13903 (8.13)***	0.14826 (8.68)***	0.14794 (8.68)***	0.13059 (2.38)**	0.13816 (2.42)**
Adj R^2			0.6142	0.6143	0.6148	0.6143	0.6143	0.6143	0.6142
Sample Size			10,995	10,995	10,995	10,995	10,995	10,995	10,995

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

with *lower* audit fees at the city level. The finding in Column 2 is somewhat different, with a positive and significant coefficient on prior industry experience (t-statistic = 3.52). While the result from Column 1 indicates that industry specialization may reduce audit fees, the result in Column 2 suggests that the duration of industry experience may be associated with *higher* audit fees. This result is corroborated in Column 3, as the coefficients for both variables remain significant and in their previously noted directions (t-statistic = -3.82 and t-statistic = 3.80). While these results are somewhat surprising, perhaps more surprising is the implication of the results when taken in unison with the city level audit quality results. I did not observe a significant association between audit quality and prior industry experience for either the market share measure (Table 4) or the portfolio share measure (Table 5). However, the association between audit fees and prior industry experience at the city level is positive. Taken together, these results imply that audit firms with prior industry experience at the city level demand a premium for their services despite the fact that they do not actually improve the quality of audits for their clients. While there may be a competing explanation for the observed positive association between audit fees and prior industry experience, it seems that auditors are able to command higher fees just for the duration of their industry experience.

The results for the remaining hypotheses presented in Columns 4 through 7 are a bit more straightforward. While the associations between audit fees and each of the industry characteristic variables are generally significant and in the predicted direction throughout the regressions, none of the interactions are significant in Columns 4, 5, or 6. This result also holds when all three interactions are tested together in Column 7. This finding suggests that while prior industry experience appears to be associated with higher audit fees at the city level, this association is not sensitive to the nature of the industry of the audit firm's clients.

The results for the audit fee tests using the portfolio measures in Table 9 are similar to those using the market share measure. Column 1 provides the results of the regression with the portfolio share

TABLE 9

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Portfolio Share

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
INTERCEPT	β_0	?	9.85751 (181.22)***	9.78202 (169.92)***	9.79323 (169.83)***	9.79178 (166.05)***	9.73719 (140.23)***	9.78323 (165.11)***	9.74316 (129.01)***
PORTLEADER $_{it}$	β_1	+	-0.09515 (-6.01)***		-0.10262 (-6.50)***				
ln(PORTCONSEC $_{it}$***)***	β_2	+		0.04631 (3.20)***	0.05418 (3.74)***	0.04208 (2.80)***	0.07048 (3.03)***	0.04571 (2.86)***	0.06801 (2.53)**
ln(PORTCONSEC $_{it}$***) * NUMCLIENTS*** $_{it}$		+				0.01505 (0.81)			0.01281 (0.66)
ln(PORTCONSEC $_{it}$***) * MOX*** $_i$		+					-0.12776 (-1.27)		-0.12567 (-1.20)
ln(PORTCONSEC $_{it}$***) * COMPLEX*** $_i$		+						0.00245 (0.10)	-0.00620 (-0.23)
ASSETS $_{it}$	β_3	+	0.45801 (78.08)***	0.44815 (77.69)***	0.45657 (77.61)***	0.44827 (77.78)***	0.44830 (77.64)***	0.44817 (77.76)***	0.44835 (77.8)***
BUSSEG $_{it}$	β_4	+	0.24955 (16.35)***	0.24960 (16.39)***	0.24811 (16.32)***	0.24953 (16.39)***	0.24960 (16.39)***	0.24959 (16.39)***	0.24958 (16.40)***
CATA $_{it}$	β_5	+	0.80116 (21.00)***	0.80060 (21.02)***	0.79504 (20.88)***	0.80036 (21.02)***	0.79914 (20.98)***	0.80068 (21.01)***	0.79876 (20.95)***
QUICK $_{it}$	β_6	-	-0.00006 (-5.71)***	-0.00006 (-5.50)***	-0.00006 (-5.64)***	-0.00006 (-5.52)***	-0.00006 (-5.76)***	-0.00006 (-5.49)***	-0.00006 (-5.76)***
LEV $_{it}$	β_7	+	0.02161 (1.60)	0.02216 (1.68)*	0.02388 (1.81)*	0.02197 (1.67)*	0.02222 (1.69)*	0.02218 (1.69)*	0.02203 (1.67)*
ROA $_{it}$	β_8	-	-0.08079 (-1.93)*	-0.07743 (-1.89)*	-0.08125 (-1.97)**	-0.07781 (-1.90)*	-0.07806 (-1.91)*	-0.07757 (-1.89)*	-0.07804 (-1.90)*
FOREIGN $_{it}$	β_9	+	0.51287 (12.87)***	0.51299 (12.89)***	0.51275 (12.90)***	0.51279 (12.89)***	0.51214 (12.89)***	0.51299 (12.89)***	0.51200 (12.89)***

TABLE 9
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Portfolio Share (continued)

Variable		Predicted Sign	(1) Coefficient (t-statistic)	(2) Coefficient (t-statistic)	(3) Coefficient (t-statistic)	(4) Coefficient (t-statistic)	(5) Coefficient (t-statistic)	(6) Coefficient (t-statistic)	(7) Coefficient (t-statistic)
GC_{it}	β_{10}	+	0.29014 (5.91)***	0.28524 (5.81)***	0.29063 (5.93)***	0.28609 (5.82)***	0.28640 (5.83)***	0.28511 (5.80)***	0.28744 (5.84)***
YE_{it}	β_{11}	-	0.05511 (3.55)***	0.06089 (3.92)***	0.05931 (3.82)***	0.06088 (3.92)***	0.06146 (3.95)***	0.06089 (3.92)***	0.06143 (3.95)***
$LOSS_{it}$	β_{12}	+	0.18427 (9.59)***	0.18994 (9.92)***	0.18849 (9.84)***	0.19006 (9.92)***	0.18946 (9.88)***	0.18994 (9.91)***	0.18958 (9.88)***
$FIRSTYR_{it}$	β_{13}	-	-0.40093 (-8.40)***	-0.37745 (-7.81)***	-0.36878 (-7.62)***	-0.37749 (-7.81)***	-0.37606 (-7.77)***	-0.37741 (-7.81)***	-0.37622 (-7.77)***
$BIG4_{it}$	β_{14}	+	0.16244 (8.26)***	0.17580 (8.31)***	0.12791 (5.73)***	0.17249 (7.96)***	0.17348 (8.19)***	0.17574 (8.31)***	0.17086 (7.89)***
$NUMCLIENTS_{it}$	β_{15}	-	-0.03533 (-4.13)***	-0.06511 (-7.88)***	-0.04806 (-5.56)***	-0.10148 (-2.20)**	-0.06631 (-8.02)***	-0.06517 (-7.87)***	-0.09709 (-2.04)**
MOX_i	β_{16}	-	-0.75417 (-10.84)***	-0.76829 (-11.04)***	-0.75627 (-10.89)***	-0.76832 (-11.05)***	-0.52014 (-2.33)**	-0.76841 (-11.04)***	-0.52394 (-2.26)**
$COMPLEX_i$	β_{17}	+	0.15158 (8.91)***	0.14793 (8.67)***	0.14946 (8.78)***	0.14782 (8.66)***	0.14699 (8.62)***	0.14272 (2.44)**	0.16009 (2.65)***
Adj R^2			0.6149	0.6142	0.6155	0.6142	0.6143	0.6142	0.6142
Sample Size			10,995	10,995	10,995	10,995	10,995	10,995	10,995

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

of industry specialization. Once again, the coefficient on the industry specialization variable is negative and significant (t-statistic = -6.01), indicating that industry specialization is associated with lower audit fees. In contrast, the coefficient on the prior industry specialization variable for the regression in Column 2 is positive and significant (t-statistic = 3.20), suggesting that audit fees increase with the number of years that an auditor has been an industry expert. These results hold when the industry specialization and prior industry experience variables are tested jointly in Column 3 (t-statistic = -6.50 and t-statistic = 3.74, respectively). As before, these results indicate that prior industry experience at the city level is taken into account in audit pricing decisions, despite the possibility that prior industry experience at the city level may not be relevant to the quality of audit services provided.

The results displayed in Columns 4 through 7 for the prior industry experience interactions with the industry characteristics variables are also consistent with the earlier tests. None of the coefficients on the interactions are significant; neither in individual tests nor in the joint test. Once again, this result suggests that auditors with prior industry experience can charge higher levels of fees for their services, but that this association does not appear to vary significantly based on the type of industry.

Obviously, the major takeaway of the city level audit fee tests is the somewhat contradictory finding relative to the city level audit quality tests. While it stands to reason that auditors with prior industry experience may charge higher fees than other auditors, this assertion is partially predicated on the notion that auditors with prior industry experience provide higher quality audit services than other auditors. The results of these tests suggest that this may not be the case. As previously discussed, there may be other factors driving the observed audit fee premium for experienced auditors. However, it is not clear what these factors might be; particularly since none of the tests on industry characteristics provided significant results.

4 Additional Analyses

4.1 Alternative Industry Specialization Measures

In addition to examining industry specialization at both the national and city level, several prior studies have developed joint measures of industry specialization for auditors that are specialists at both levels (Ferguson et al. 2006; Reichelt and Wang 2010; Krishnan et al. 2013). In light of the differences in my findings at the national and city levels, I maintain that measurement of prior industry experience at these levels is appropriate. However, as an additional check of my results, I perform additional analyses of my primary hypothesis (**H1a** and **H1b**) using measures of prior industry experience developed from joint market share and portfolio share measures of industry specialization. I measure industry specialization using an indicator variable for auditors that are market (portfolio) leaders at both the national and city level. Similar to my national and city level measures, my measure of joint prior industry experience is the sum of the number of consecutive years that an auditor has been a joint market (portfolio) leader.

Table 10 presents the results for my joint measure audit quality tests. Apart from a marginally significant result in column 2 (t-statistic = 7.72), I do not find a significant association between prior industry experience and audit quality using joint measures. This result is consistent with the earlier city level tests on audit quality. Given that the joint measure is dependent on industry expertise at the city level, this result is also somewhat intuitive. This finding reinforces my assertion that prior industry experience is relevant to audit quality at the national level only.

The results for my joint measure tests on audit fees are presented in Table 11. The results in columns 1 through 3 do not imply that there is a strong association between prior industry experience and audit fees using a joint market share measure of prior industry experience. However, I do find a significant association in columns 4 through 6 using a joint portfolio share measure of prior industry experience. I find that prior industry experience is negatively associated

TABLE 10

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – Joint Market and Portfolio Shares

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**
INTERCEPT	β_0	-0.16619	-0.16610	-0.16619	-0.16607	-0.16724	-0.16736	-0.16716	-0.16703
		(-17.80)***	(-17.78)***	(-17.74)***	(-17.77)***	(-18.12)***	(-18.17)***	(-18.06)***	(-18.00)***
MKTLEADER $_{it}$ / ***PORTLEADER*** $_{it}$	β_1	0.00432		0.00412		0.00393		-0.00819	
		(1.73)*		(0.65)		(0.48)		(-0.76)	
ln(MKTCONSEC) $_{it}$ / ***ln(PORTCONSEC)*** $_{it}$	β_2		0.00186	0.00010			0.00284	0.00651	
			(1.72)*	(0.04)			(0.64)	(0.92)	
MKTCONSEC $_{it}$ / ***PORTCONSEC*** $_{it}$					0.00001				-0.00053
					(0.01)				(-0.21)
MKTCONSEC $^2_{it}$ / ***PORTCONSEC*** $^2_{it}$					0.00004				0.00011
					(0.29)				(0.59)
SIZE $_{it}$	β_3	0.00796	0.00796	0.00796	0.00795	0.00796	0.00791	0.00793	0.00792
		(6.02)***	(6.02)***	(6.02)***	(6.03)***	(6.32)***	(6.37)***	(6.35)***	(6.38)***
CFO $_{it}$	β_4	0.07005	0.07012	0.07005	0.07022	0.07020	0.07018	0.07008	0.07013
		(2.89)***	(2.89)***	(2.88)***	(2.88)***	(2.88)***	(2.88)***	(2.88)***	(2.88)***
STDEARN $_{it}$	β_5	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001
		(-1.46)	(-1.47)	(-1.47)	(-1.47)	(-1.49)	(-1.50)	(-1.50)	(-1.49)
LEV $_{it}$	β_6	-0.06082	-0.06083	-0.06082	-0.06091	-0.06128	-0.06153	-0.06156	-0.06160
		(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)
LOSS $_{it}$	β_7	-0.00575	-0.00573	-0.00575	-0.00570	-0.00562	-0.00558	-0.00551	-0.00551
		(-0.78)	(-0.78)	(-0.78)	(-0.77)	(-0.77)	(-0.76)	(-0.75)	(-0.75)
MB $_{it}$	β_8	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002
		(-0.79)	(-0.79)	(-0.79)	(-0.79)	(-0.80)	(-0.83)	(-0.84)	(-0.85)
ALTMAN $_{it}$	β_9	0.00376	0.00376	0.00376	0.00377	0.00377	0.00378	0.00378	0.00378
		(4.61)***	(4.62)***	(4.61)***	(4.61)***	(4.58)***	(4.59)***	(4.60)***	(4.58)***

TABLE 10

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – Joint Market and Portfolio Shares (continued)

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**
$TACC_{it-1}$	β_{10}	0.02294	0.02293	0.02294	0.02291	0.02296	0.02296	0.02294	0.02292
		(1.32)	(1.32)	(1.32)	(1.32)	(1.32)	(1.32)	(1.31)	(1.31)
$GROWTH_{it}$	β_{11}	-0.00248	-0.00248	-0.00248	-0.00248	-0.00248	-0.00248	-0.00249	-0.00248
		(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)	(-1.42)
$BIG4_{it}$	β_{12}	0.01713	0.01731	0.01713	0.01754	0.01895	0.01935	0.01937	0.01902
		(1.98)**	(2.02)**	(1.97)**	(2.01)**	(2.07)**	(2.09)**	(2.09)**	(2.03)**
$TENURE_{it}$	β_{13}	0.00871	0.00869	0.00871	0.00866	0.00881	0.00882	0.00879	0.00880
		(3.99)***	(3.98)***	(3.98)***	(3.94)***	(4.03)***	(4.03)***	(4.01)***	(4.02)***
$NUMCLIENTS_{it}$	β_{14}	-0.00971	-0.00973	-0.00971	-0.00972	-0.00986	-0.00991	-0.00984	-0.00988
		(-4.66)***	(-4.67)***	(-4.65)***	(-4.69)***	(-4.37)***	(-4.40)***	(-4.38)***	(-4.41)***
MOX_i	β_{15}	0.08101	0.08051	0.08098	0.08007	0.08134	0.08112	0.08095	0.08112
		(10.52)***	(10.41)***	(10.55)***	(10.56)***	(10.70)***	(10.75)***	(10.73)***	(10.77)***
$COMPLEX_i$	β_{16}	0.00750	0.00751	0.00750	0.00740	0.00744	0.00760	0.00746	0.00771
		(2.17)**	(2.18)**	(2.18)**	(2.11)**	(2.25)**	(2.32)**	(2.26)**	(2.36)**
Adj R^2		0.1584	0.1584	0.1583	0.1583	0.1584	0.1584	0.1584	0.1584
Sample Size		9,033	9,033	9,033	9,033	9,033	9,033	9,033	9,033

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

TABLE 11

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – Joint Market and Portfolio Shares

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**
INTERCEPT	β_0	9.84006 (181.54)***	9.84014 (181.23)***	9.83881 (180.85)***	9.86519 (180.24)***	9.86900 (180.27)***	9.86554 (180.18)***
MKTLEADER $_{it}$ / ***PORTLEADER*** $_{it}$	β_1	0.02009 (1.12)		0.05053 (0.98)	-0.13549 (-5.82)***		0.10313 (1.94)*
ln(MKTCONSEC) $_{it}$ / ***ln(PORTCONSEC)*** $_{it}$	β_1		0.00686 (0.83)	-0.01447 (-0.61)		-0.08263 (-6.75)***	-0.12843 (-4.55)***
ASSETS $_{it}$	β_2	0.44945 (77.75)***	0.44951 (77.44)***	0.44961 (77.34)***	0.45420 (78.90)***	0.45654 (79.12)***	0.45695 (79.16)***
BUSSEG $_{it}$	β_3	0.25040 (16.40)***	0.25054 (16.41)***	0.25031 (16.39)***	0.25025 (16.35)***	0.24990 (16.30)***	0.24981 (16.29)***
CATA $_{it}$	β_4	0.80681 (21.13)***	0.80651 (21.15)***	0.80670 (21.14)***	0.77503 (20.22)***	0.75656 (19.66)***	0.75264 (19.55)***
QUICK $_{it}$	β_5	-0.00006 (-5.43)***	-0.00006 (-5.46)***	-0.00006 (-5.44)***	-0.00006 (-5.19)***	-0.00005 (-4.92)***	-0.00005 (-4.84)***
LEV $_{it}$	β_6	0.02072 (1.55)	0.02063 (1.54)	0.02066 (1.54)	0.01934 (1.43)	0.01746 (1.27)	0.01661 (1.20)
ROA $_{it}$	β_7	-0.07747 (-1.87)*	-0.07721 (-1.87)*	-0.07791 (-1.88)*	-0.08584 (-2.03)**	-0.09001 (-2.11)**	-0.09055 (-2.12)**
FOREIGN $_{it}$	β_8	0.51383 (12.88)***	0.51371 (12.87)***	0.51365 (12.87)***	0.48603 (12.25)***	0.46541 (11.73)***	0.45957 (11.56)***

TABLE 11
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – Joint Market and Portfolio Shares (continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
GC_{it}	β_9	0.28385 (5.77)***	0.28387 (5.77)***	0.28459 (5.78)***	0.29267 (5.95)***	0.29201 (5.92)***	0.29009 (5.88)***
YE_{it}	β_{10}	0.05703 (3.67)***	0.05689 (3.66)***	0.05741 (3.69)***	0.06725 (4.35)***	0.06973 (4.51)***	0.06901 (4.47)***
$LOSS_{it}$	β_{11}	0.18567 (9.67)***	0.18594 (9.68)***	0.18542 (9.65)***	0.18467 (9.57)***	0.18273 (9.45)***	0.18197 (9.41)***
$FIRSTYR_{it}$	β_{12}	-0.40420 (-8.46)***	-0.40431 (-8.47)***	-0.40425 (-8.46)***	-0.39734 (-8.30)***	-0.39824 (-8.33)***	-0.40026 (-8.36)***
$BIG4_{it}$	β_{13}	0.19716 (10.29)***	0.19894 (10.46)***	0.19665 (10.25)***	0.17529 (9.23)***	0.16671 (8.72)***	0.16761 (8.77)***
$NUMCLIENTS_{it}$	β_{14}	-0.05348 (-6.52)***	-0.05350 (-6.52)***	-0.05319 (-6.49)***	-0.04220 (-5.25)***	-0.03904 (-4.87)***	-0.03953 (-4.93)***
MOX_i	β_{15}	-0.76718 (-11.00)***	-0.76904 (-11.02)***	-0.76239 (-10.88)***	-0.76174 (-10.94)***	-0.75406 (-10.83)***	-0.75062 (-10.78)***
$COMPLEX_i$	β_{16}	0.15251 (8.82)***	0.15211 (8.79)***	0.15178 (8.77)***	0.12664 (7.47)***	0.12006 (7.08)***	0.12122 (7.16)***
Adj R^2		0.6138	0.6138	0.6138	0.6153	0.6161	0.6163
Sample Size		10,995	10,995	10,995	10,995	10,995	10,995

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

with audit fees in column 5 (t-statistic = -6.75); and that audit fee premiums for industry specialization are decreasing in the duration of prior industry experience in column 6 (t-statistic = 1.94 and t-statistic = -4.55, respectively). These results are consistent with those in Table 8 using the national portfolio share measure. These results are also particularly surprising given that the results of the audit fee tests using the national and city level portfolio share measures differed dramatically. This result may suggest that prior industry experience at the national level is highly relevant to pricing decisions, and generally leads to reductions in audit fees with the duration of prior industry experience.

Another potential concern of my study is the use of client assets as my metric for industry specialization. As mentioned earlier, prior studies have varied in their choices of how to effectively capture auditor industry expertise. A few studies assert that audit fees is the cleanest measure; and that other measures are simply proxies due to the lack of audit fee availability (Cairney and Young 2006; Knechel et al. 2007). Assuming that is the case, though, it is unclear why recent studies have deferred to using client assets when audit fee data is widely available (Zerni 2012; Minutti-Meza 2013). For my study, I maintain that client assets is a better metric simply because of the data availability issue. Audit fee data in Audit Analytics only goes back to 2000. Given that my measure requires several prior years of data to calculate, this limits the time frame of useful analysis. This issue is reflected in the fact that my city level analyses – which require metropolitan statistical area (MSA) data from Audit Analytics – are restricted to the period from 2010 to 2013.

Nevertheless, I address this possible criticism by reperforming all of my primary analyses using measures of prior industry experience constructed from audit fee data. Similar to my primary measures of prior industry experience, I construct both market share and portfolio share measures of industry specialization at the national and city levels. I assert that an auditor is a national (city) market leader if its audit fees charged within a two-digit SIC category are at least 30% (50%) of

all audit fees within that industry. National (city) portfolio industry specialization is measured as the three industries which an auditor receives the highest share of its total audit fees. My measures of prior industry experience are again the sum of the number of consecutive years that an auditor has been a market (portfolio) leader.

Table 12 presents the results of my national level audit quality tests using my audit fee measures of prior industry experience. In contrast to my main results, I do not find significant results for the market share measure of prior industry experience in columns 1 through 4. I do, however, find significant results using a portfolio share measure of prior industry experience. In column 6, I find a significant and positive coefficient on prior industry experience (t-statistic = 1.87). Furthermore, I find in column 7 that, when industry specialization and prior industry experience are tested jointly, audit quality appears to be increasing in the duration of prior industry experience (t-statistic = -1.90 and t-statistic = 3.80, respectively). These results are relatively consistent with my main tests in Tables 2 and 3.

Interestingly, I find similar results for my tests using city level measures of prior industry expertise in Table 13. In column 2, I find a positive and significant coefficient on the market share measure of prior industry experience (t-statistic = 2.62). However, when I consider industry specialization and prior industry experience jointly in column 3, the coefficient on prior industry experience is no longer significant (t-statistic = 1.99 and t-statistic = -0.63, respectively). My tests using the portfolio share measure yield a similar result in column 6 for prior industry experience (t-statistic = 2.62). However, in the joint test in column 7, it is instead the coefficient on industry specialization that loses significance while prior industry experience remains positive and significance (t-statistic = -0.90 and t-statistic = 1.88, respectively).

TABLE 12

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares of Audit Fees

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
INTERCEPT	β_0	-0.17190 (-12.75)***	-0.17194 (-12.72)***	-0.17223 (-12.75)***	-0.17223 (-12.75)***	-0.17271 (-13.02)***	-0.17026 (-12.84)***	-0.16847 (-12.52)***	-0.16884 (-12.66)***
$MKTLEADER_{it}$ / $PORTLEADER_{it}$	β_1	0.00265 (1.09)		0.00592 (1.23)		-0.00210 (-0.35)		-0.01547 (-1.90)*	
$ln(MKTCONSEC)_{it}$ / $ln(PORTCONSEC)_{it}$	β_2		0.00093 (0.78)	-0.00177 (-0.76)			0.00466 (1.87)*	0.01179 (3.80)***	
$MKTCONSEC_{it}$ / $PORTCONSEC_{it}$	β_2				0.00592 (1.23)				-0.00293 (-1.06)
$MKTCONSEC^2_{it}$ / $PORTCONSEC^2_{it}$	β_2				-0.00177 (-0.76)				0.00040 (1.81)*
$SIZE_{it}$	β_3	0.01300 (9.23)***	0.01300 (9.22)***	0.01302 (9.22)***	0.01302 (9.22)***	0.01303 (9.23)***	0.01297 (9.26)***	0.01281 (9.02)***	0.01278 (9.11)***
CFO_{it}	β_4	0.05983 (1.51)	0.05985 (1.51)	0.05981 (1.51)	0.05981 (1.51)	0.05988 (1.51)	0.05977 (1.51)	0.05994 (1.51)	0.06016 (1.51)
$STDEARN_{it}$	β_5	-0.00003 (-4.27)***	-0.00003 (-4.26)***	-0.00003 (-4.27)***	-0.00003 (-4.27)***	-0.00003 (-4.33)***	-0.00003 (-4.26)***	-0.00003 (-4.33)***	-0.00003 (-4.12)***
LEV_{it}	β_6	-0.07627 (-1.45)	-0.07629 (-1.45)	-0.07624 (-1.44)	-0.07624 (-1.44)	-0.07634 (-1.45)	-0.07626 (-1.44)	-0.07660 (-1.45)	-0.07710 (-1.46)
$LOSS_{it}$	β_7	-0.00937 (-0.89)	-0.00938 (-0.89)	-0.00932 (-0.89)	-0.00932 (-0.89)	-0.00935 (-0.90)	-0.00926 (-0.89)	-0.00943 (-0.90)	-0.00938 (-0.90)
MB_{it}	β_8	-0.00001 (-0.37)	-0.00001 (-0.37)	-0.00001 (-0.37)	-0.00001 (-0.37)	-0.00001 (-0.38)	-0.00001 (-0.36)	-0.00001 (-0.38)	-0.00001 (-0.39)
$ALTMAN_{it}$	β_9	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*	0.00097 (1.76)*

TABLE 12
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares of Audit Fees (continued)

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	0.01666	0.01666	0.01667	0.01667	0.01664	0.01668	0.01651	0.01651
		(0.79)	(0.79)	(0.79)	(0.79)	(0.79)	(0.79)	(0.78)	(0.78)
$GROWTH_{it}$	β_{11}	-0.00275	-0.00275	-0.00275	-0.00275	-0.00275	-0.00274	-0.00275	-0.00274
		(-1.73)*	(-1.73)*	(-1.73)*	(-1.73)*	(-1.73)*	(-1.73)*	(-1.73)*	(-1.73)*
$BIG4_{it}$	β_{12}	0.04134	0.04167	0.04119	0.04119	0.04121	0.04374	0.04036	0.04264
		(4.83)***	(4.90)***	(4.79)***	(4.79)***	(5.18)***	(5.22)***	(5.11)***	(5.16)***
$TENURE_{it}$	β_{13}	0.00786	0.00787	0.00788	0.00788	0.00792	0.00786	0.00774	0.00775
		(4.00)***	(4.01)***	(4.02)***	(4.02)***	(4.05)***	(4.02)***	(3.95)***	(3.96)***
$NUMCLIENTS_{it}$	β_{14}	-0.01652	-0.01655	-0.01643	-0.01643	-0.01600	-0.01791	-0.01654	-0.01745
		(-9.62)***	(-9.59)***	(-9.53)***	(-9.53)***	(-7.16)***	(-8.91)***	(-7.41)***	(-8.89)***
MOX_i	β_{15}	0.06758	0.06769	0.06843	0.06843	0.06902	0.06714	0.06319	0.06592
		(8.44)***	(8.38)***	(8.55)***	(8.55)***	(9.02)***	(8.40)***	(8.30)***	(8.35)***
$COMPLEX_i$	β_{16}	0.00377	0.00373	0.00358	0.00358	0.00367	0.00401	0.00712	0.00586
		(0.90)	(0.88)	(0.86)	(0.86)	(0.95)	(0.96)	(1.71)*	(1.43)
Adj R^2		0.1266	0.1266	0.1265	0.1265	0.1266	0.1268	0.1272	0.1275
Sample Size		12,489	12,489	12,489	12,489	12,489	12,489	12,489	12,489

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

TABLE 13

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares of Audit Fees

$$DACC_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 SIZE_{it} + \beta_4 CFO_{it} + \beta_5 STDEARN_{it} + \beta_6 LEV_{it} + \beta_7 LOSS_{it} + \beta_8 MB_{it} + \beta_9 ALTMAN_{it} + \beta_{10} TACC_{it-1} + \beta_{11} GROWTH_{it} + \beta_{12} BIG4_{it} + \beta_{13} TENURE_{it} + \beta_{14} NUMCLIENTS_{it} + \beta_{15} MOX_i + \beta_{16} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
INTERCEPT	β_0	-0.16813	-0.16627	-0.16886	-0.16784	-0.16916	-0.16818	-0.16623	-0.16809
		(-17.87)***	(-17.71)***	(-17.38)***	(-17.63)***	(-17.57)***	(-17.77)***	(-17.34)***	(-17.47)***
$MKTLEADER_{it}$ / $PORTLEADER_{it}$	β_1	0.00943		0.01251		0.00510		-0.00721	
		(2.92)***		(1.99)**		(1.62)		(-0.90)	
$ln(MKTCONSEC)_{it}$ / $ln(PORTCONSEC)_{it}$	β_2		0.00366	-0.00166			0.00382	0.00680	
			(2.62)***	(-0.63)			(2.78)***	(1.88)*	
$MKTCONSEC_{it}$ / $PORTCONSEC_{it}$					0.00365				0.00214
					(3.12)***				(1.98)**
$MKTCONSEC^2_{it}$ / $PORTCONSEC^2_{it}$					-0.00027				-0.00011
					(-2.94)***				(-1.28)
$SIZE_{it}$	β_3	0.00796	0.00796	0.00799	0.00801	0.00790	0.00776	0.00780	0.00773
		(6.03)***	(6.00)***	(6.03)***	(6.05)***	(6.02)***	(5.76)***	(5.85)***	(5.71)***
CFO_{it}	β_4	0.07032	0.07031	0.07027	0.07031	0.06977	0.06964	0.06963	0.06965
		(2.89)***	(2.89)***	(2.89)***	(2.89)***	(2.88)***	(2.87)***	(2.87)***	(2.87)***
$STDEARN_{it}$	β_5	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001
		(-1.54)	(-1.51)	(-1.54)	(-1.51)	(-1.56)	(-1.63)	(-1.63)	(-1.64)
LEV_{it}	β_6	-0.06104	-0.06094	-0.06107	-0.06109	-0.06091	-0.06094	-0.06099	-0.06099
		(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)	(-0.90)
$LOSS_{it}$	β_7	-0.00549	-0.00553	-0.00547	-0.00550	-0.00540	-0.00529	-0.00527	-0.00527
		(-0.74)	(-0.75)	(-0.74)	(-0.75)	(-0.73)	(-0.72)	(-0.72)	(-0.71)
MB_{it}	β_8	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002	-0.00002
		(-0.71)	(-0.73)	(-0.71)	(-0.72)	(-0.75)	(-0.74)	(-0.75)	(-0.73)
$ALTMAN_{it}$	β_9	0.00381	0.00381	0.00381	0.00381	0.00382	0.00383	0.00382	0.00383
		(4.63)***	(4.62)***	(4.63)***	(4.63)***	(4.63)***	(4.63)***	(4.63)***	(4.63)***

TABLE 13
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares of Audit Fees
(continued)

		Market Share				Portfolio Share			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
$TACC_{it-1}$	β_{10}	0.02291	0.02293	0.02290	0.02292	0.02291	0.02289	0.02285	0.02287
		(1.32)	(1.32)	(1.32)	(1.32)	(1.32)	(1.32)	(1.32)	(1.32)
$GROWTH_{it}$	β_{11}	-0.00250	-0.00249	-0.00250	-0.00249	-0.00248	-0.00247	-0.00247	-0.00247
		(-1.43)	(-1.42)	(-1.43)	(-1.42)	(-1.42)	(-1.41)	(-1.41)	(-1.41)
$BIG4_{it}$	β_{12}	0.01559	0.01632	0.01557	0.01608	0.01989	0.02037	0.01955	0.02062
		(1.91)*	(1.97)**	(1.91)*	(1.95)*	(2.36)**	(2.34)**	(2.35)**	(2.35)**
$TENURE_{it}$	β_{13}	0.00826	0.00782	0.00853	0.00853	0.00869	0.00823	0.00794	0.00819
		(3.78)***	(3.49)***	(3.60)***	(3.66)***	(3.95)***	(3.77)***	(3.63)***	(3.68)***
$NUMCLIENTS_{it}$	β_{14}	-0.00866	-0.00903	-0.00861	-0.00879	-0.01073	-0.01190	-0.01213	-0.01198
		(-4.02)***	(-4.20)***	(-4.03)***	(-4.12)***	(-4.89)***	(-5.37)***	(-5.46)***	(-5.14)***
MOX_i	β_{15}	0.07816	0.07845	0.07844	0.07924	0.08149	0.08177	0.08194	0.08189
		(10.52)***	(10.47)***	(10.49)***	(10.48)***	(10.53)***	(10.54)***	(10.54)***	(10.54)***
$COMPLEX_i$	β_{16}	0.00827	0.00804	0.00821	0.00777	0.00682	0.00654	0.00646	0.00653
		(2.44)**	(2.39)**	(2.43)**	(2.31)**	(2.03)**	(1.96)**	(1.94)*	(1.96)**
Adj R^2		0.1594	0.1592	0.1594	0.1594	0.1588	0.1591	0.1591	0.1592
Sample Size		9,012	9,012	9,012	9,012	9,012	9,012	9,012	9,012

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

Table 14 contains the results for the audit fee tests at the national level. The results using the market share measure are similar to the main tests in Table 6, with a positive and significant coefficient on prior industry experience in column 2 (t-statistic = 4.77). However, this significant result disappears in column 3 when industry specialization and prior industry experience are considered jointly (t-statistic = 2.50 and t-statistic = -0.09, respectively). While it is not immediately clear what this result implies, it appears that the majority of the significance of the result in column 2 comes from the auditor being an industry specialist; and that the duration of prior industry experience does not appear to be highly relevant. With respect to the portfolio share measure tests in columns 4 through 6, none of the coefficients on prior industry experience load significantly.

The results for the city level audit fee tests are presented in Table 15. In contrast to the national level tests, the tests using the market share measure in columns 1 through 3 suggest decreasing audit fees relative to prior industry experience. The coefficient on prior industry experience in column 2 is negative and significant (t-statistic = -2.43), while the coefficients on industry specialization and prior industry experience in column 3 are both significant and in opposite directions (t-statistic = 3.87 and t-statistic = -4.38, respectively). These results are consistent with the main national level audit fee tests in Tables 6 and 7, but stand in stark contrast to the main city level tests in Tables 8 and 9. The portfolio share measure tests in columns 4 through 6 are more in line with the main city level tests. The coefficient on prior industry experience in column 5 is positive and significant (t-statistic = 3.22). However, similar to the national level tests in Table 15, the significance on the prior industry experience coefficient disappears when considered jointly with industry specialization in column 6.

In contrast to the results using client assents, the results using audit fees to measure industry expertise are less clear and more difficult to interpret. None of the tests provided conclusive results of my primary hypothesis. In contrast to my main tests, however, I did find generally more

TABLE 14

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares of Audit Fees

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**
INTERCEPT	β_0	9.76150 (208.38)***	9.76314 (208.07)***	9.76132 (208.20)***	9.75037 (209.05)***	9.74856 (207.41)***	9.74396 (206.13)***
MKTLEADER $_{it}$ ***/ PORTLEADER*** $_{it}$	β_1	0.08793 (5.52)***		0.09123 (2.50)**	0.02668 (1.48)		0.05142 (1.97)**
ln(MKTCONSEC) $_{it}$ ***/ ln(PORTCONSEC)*** $_{it}$	β_2		0.03917 (4.77)***	-0.00176 (-0.09)		0.00245 (0.20)	-0.02068 (-1.15)
ASSETS $_{it}$	β_3	0.47562 (95.99)***	0.47558 (95.91)***	0.47563 (95.93)***	0.47696 (96.66)***	0.47685 (96.40)***	0.47741 (95.78)***
BUSSEG $_{it}$	β_4	0.25958 (19.95)***	0.25977 (19.95)***	0.25959 (19.94)***	0.26133 (20.04)***	0.26150 (20.05)***	0.26145 (20.04)***
CATA $_{it}$	β_5	0.85186 (25.63)***	0.85299 (25.65)***	0.85176 (25.62)***	0.84402 (25.39)***	0.84587 (25.43)***	0.84081 (25.35)***
QUICK $_{it}$	β_6	-0.00013 (-5.47)***	-0.00013 (-5.50)***	-0.00013 (-5.47)***	-0.00013 (-5.73)***	-0.00013 (-5.71)***	-0.00013 (-5.72)***
LEV $_{it}$	β_7	0.00278 (0.14)	0.00291 (0.14)	0.00276 (0.14)	0.00115 (0.06)	0.00106 (0.05)	0.00071 (0.03)
ROA $_{it}$	β_8	-0.17450 (-4.64)***	-0.17414 (-4.63)***	-0.17451 (-4.64)***	-0.17554 (-4.64)***	-0.17479 (-4.63)***	-0.17583 (-4.64)***
FOREIGN $_{it}$	β_9	0.23312 (7.14)***	0.23633 (7.23)***	0.23298 (7.13)***	0.23289 (7.12)***	0.23414 (7.16)***	0.23053 (7.04)***

TABLE 14
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares of Audit Fees
(continued)

Variable		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
GC_{it}	β_{10}	0.23678 (5.80)***	0.23695 (5.80)***	0.23680 (5.80)***	0.24035 (5.88)***	0.24073 (5.89)***	0.24160 (5.92)***
YE_{it}	β_{11}	0.01454 (1.01)	0.01373 (0.95)	0.01458 (1.01)	0.01571 (1.09)	0.01508 (1.05)	0.01625 (1.13)
$LOSS_{it}$	β_{12}	0.15329 (8.74)***	0.15315 (8.73)***	0.15330 (8.74)***	0.15383 (8.76)***	0.15370 (8.76)***	0.15330 (8.73)***
$FIRSTYR_{it}$	β_{13}	-0.36804 (-9.55)***	-0.36798 (-9.54)***	-0.36806 (-9.55)***	-0.37056 (-9.62)***	-0.36984 (-9.59)***	-0.37044 (-9.61)***
$BIG4_{it}$	β_{14}	0.14023 (7.31)***	0.14750 (7.73)***	0.14006 (7.31)***	0.17199 (8.55)***	0.16244 (8.39)***	0.17331 (8.61)***
$NUMCLIENTS_{it}$	β_{15}	-0.03627 (-5.90)***	-0.03817 (-6.20)***	-0.03617 (-5.89)***	-0.04026 (-5.55)***	-0.03516 (-5.04)***	-0.03897 (-5.35)***
MOX_i	β_{16}	-0.79324 (-12.18)***	-0.80177 (-12.27)***	-0.79249 (-12.14)***	-0.74139 (-11.49)***	-0.74435 (-11.51)***	-0.72928 (-11.30)***
$COMPLEX_i$	β_{17}	0.14838 (9.81)***	0.15102 (9.88)***	0.14817 (9.68)***	0.13065 (8.66)***	0.13521 (9.03)***	0.12342 (7.82)***
Adj R^2		0.6227	0.6225	0.6226	0.6219	0.6218	0.6219
Sample Size		14,475	14,475	14,475	14,475	14,475	14,475

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

TABLE 15

Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares of Audit Fees

$$FEES_{it} = \beta_0 + \beta_1 CURR\_ISPEC_{it} + \beta_2 PRIOR\_EXP_{it} + \beta_3 ASSETS_{it} + \beta_4 BUSSEG_{it} + \beta_5 CATA_{it} + \beta_6 QUICK_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 FOREIGN_{it} + \beta_{10} GC_{it} + \beta_{11} YE_{it} + \beta_{12} LOSS_{it} + \beta_{13} FIRSTYR_{it} + \beta_{14} BIG4_{it} + \beta_{15} NUMCLIENTS_{it} + \beta_{16} MOX_i + \beta_{17} COMPLEX_i + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**	**Coefficient (t-statistic)**
INTERCEPT	β_0	9.91429 (193.79)***	9.91122 (193.44)***	9.89524 (192.43)***	9.89517 (193.91)***	9.91118 (193.91)***	9.89179 (193.82)***
MKTLEADER $_{it}$ ***/ PORTLEADER*** $_{it}$	β_1	-0.00476 (-0.32)		0.12681 (3.87)***	0.06955 (4.38)***		0.08567 (2.75)***
ln(MKTCONSEC) $_{it}$ ***/ ln(PORTCONSEC)*** $_{it}$	β_2		-0.01821 (-2.43)**	-0.07130 (-4.38)***		0.02601 (3.22)***	-0.00911 (-0.58)
ASSETS $_{it}$	β_3	0.45389 (83.05)***	0.45571 (82.91)***	0.45644 (82.97)***	0.44981 (81.20)***	0.45011 (80.49)***	0.45017 (80.58)***
BUSSEG $_{it}$	β_4	0.22203 (15.35)***	0.22234 (15.37)***	0.22205 (15.37)***	0.22091 (15.28)***	0.22112 (15.29)***	0.22096 (15.29)***
CATA $_{it}$	β_5	0.77646 (21.34)***	0.77901 (21.40)***	0.78091 (21.49)***	0.77474 (21.34)***	0.77621 (21.38)***	0.77440 (21.33)***
QUICK $_{it}$	β_6	-0.00005 (-5.01)***	-0.00005 (-5.08)***	-0.00005 (-5.03)***	-0.00005 (-5.29)***	-0.00005 (-5.25)***	-0.00005 (-5.27)***
LEV $_{it}$	β_7	0.02915 (2.28)**	0.02873 (2.25)**	0.02699 (2.12)**	0.02835 (2.22)**	0.02896 (2.25)**	0.02823 (2.21)**
ROA $_{it}$	β_8	-0.07050 (-1.74)*	-0.07258 (-1.78)*	-0.07421 (-1.84)*	-0.06821 (-1.70)*	-0.06863 (-1.70)*	-0.06831 (-1.70)*
FOREIGN $_{it}$	β_9	0.56706 (15.36)***	0.55895 (15.10)***	0.56077 (15.17)***	0.56100 (15.26)***	0.56156 (15.26)***	0.56165 (15.28)***

TABLE 15
Regressions of Audit Fees on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares of Audit Fees
(continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
GC_{it}	β_{10}	0.28396	0.28688	0.29171	0.28129	0.28100	0.28169
		(5.93)***	(5.98)***	(6.1)***	(5.89)***	(5.88)***	(5.90)***
YE_{it}	β_{11}	0.05456	0.05467	0.05300	0.05379	0.05454	0.05360
		(3.82)***	(3.83)***	(3.72)***	(3.77)***	(3.82)***	(3.76)***
$LOSS_{it}$	β_{12}	0.20017	0.19908	0.19801	0.20170	0.20198	0.20144
		(11.34)***	(11.27)***	(11.25)***	(11.46)***	(11.46)***	(11.45)***
$FIRSTYR_{it}$	β_{13}	-0.31315	-0.31855	-0.33070	-0.31270	-0.30648	-0.31492
		(-7.09)***	(-7.2)***	(-7.46)***	(-7.10)***	(-6.93)***	(-7.09)***
$BIG4_{it}$	β_{14}	0.22444	0.23221	0.22623	0.24905	0.23798	0.24987
		(12.73)***	(13.21)***	(12.84)***	(13.69)***	(13.32)***	(13.75)***
$NUMCLIENTS_{it}$	β_{15}	-0.08271	-0.08429	-0.07905	-0.09777	-0.09842	-0.09571
		(-10.42)***	(-10.74)***	(-10.06)***	(-11.75)***	(-10.96)***	(-10.53)***
MOX_i	β_{16}	-0.76330	-0.74995	-0.74443	-0.76281	-0.76433	-0.76251
		(-12.38)***	(-12.15)***	(-12.04)***	(-12.45)***	(-12.45)***	(-12.44)***
$COMPLEX_i$	β_{17}	0.14820	0.14293	0.14472	0.14548	0.14538	0.14592
		(9.16)***	(8.85)***	(8.97)***	(8.99)***	(8.97)***	(9.01)***
Adj R^2		0.6424	0.6426	0.6431	0.6430	0.6427	0.6430
Sample Size		10,845	10,845	10,845	10,845	10,845	10,845

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

significant results at the city level than at the national level – particularly with respect to audit quality. This may be an indication that audit fees as an industry specialization metric is more relevant at the city level, while client assets is a more appropriate metric for national level tests.

4.2 Alternative Audit Quality Measures

While the discretionary accruals measure from equation (1) is a widely accepted proxy for audit quality, it is not the only measure of audit quality used in industry specialization research. To determine whether my results are robust to alternative measures of audit quality, I perform additional tests using models from recent industry specialization studies. First, I examine the association between prior industry experience and audit quality based on the auditor's propensity to issue a going concern opinion. Based on models from prior industry specialization studies that utilize going concern opinions as a measure of audit quality (Reichelt and Wang 2010; Minutti-Meza 2013), I estimate the following regression model:

$$\begin{aligned} Prob\,(GC_{it}=1) = {} & \beta_0 + \beta_1\, CURR\_ISPEC_{it} + \beta_2\, PRIOR\_EXP_{it} + \beta_3\, SIZE_{it} + \beta_4\, STDEARN_{it} \\ & + \beta_5\, LEV_{it} + \beta_6\, LOSS_{it} + \beta_7\, MB_{it} + \beta_8\, LIT_i + \beta_9\, ALTMAN_{it} + \beta_{10}\, TENURE_{it} \\ & + \beta_{11}\, ROA_{it} + \beta_{12}\, TACC_{it-1} + \beta_{13}\, BIG4_{it} + year\ dummies + \varepsilon_{it} \end{aligned} \quad (4)$$

The dependent variable, *GC*, is an indicator variable with a value of "1" if the auditor issued a going concern opinion for firm *i* in year *t*, and "0" otherwise. LIT_i is an indicator variable with a value of "1" if firm *i* operates in a highly litigious industry, and "0" otherwise. The remaining variables are as previously defined. Because high quality auditors are more likely to issue going concern opinions, I would hypothesize my measures of industry specialization and prior industry experience in β_1 and β_2 to both be positively associated with the dependent variable.

The results of my national level analyses on equation (4) are presented in Table 16. These results are highly consistent with the national level audit quality tests in Tables 2 and 3. In column 2, the coefficient on the market share measure of prior industry experience is positive and significant

TABLE 16

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares

$$Prob\ (GC_{it}=1) = \beta_0 + \beta_1\ CURR\_ISPEC_{it} + \beta_2\ PRIOR\_EXP_{it} + \beta_3\ SIZE_{it} + \beta_4\ STDEARN_{it} + \beta_5\ LEV_{it} + \beta_6\ LOSS_{it} + \beta_7\ MB_{it} + \beta_8\ LIT_i + \beta_9\ ALTMAN_{it} + \beta_{10}\ TENURE_{it} + \beta_{11}\ ROA_{it} + \beta_{12}\ TACC_{it-1} + \beta_{13}\ BIG4_{it} + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		Coefficient (Chi-Square)	Coefficient (Chi-Square)	Coefficient (Chi-Square)	Coefficient (Chi-Square)	Coefficient (Chi-Square)	Coefficient (Chi-Square)
INTERCEPT	β_0	-1.39770 (54.48)***	-1.40490 (55.00)***	-1.41590 (55.78)***	-1.46950 (58.78)***	-1.48510 (60.36)***	-1.46000 (57.95)***
MKTLEADER $_{it}$ / ***PORTLEADER*** $_{it}$	β_1	0.16680 (4.38)**		-0.45140 (4.30)**	0.21870 (6.80)***		-0.29480 (2.41)
ln(MKTCONSEC) $_{it}$ / ***ln(PORTCONSEC)*** $_{it}$	β_2		0.11940 (10.11)***	0.31570 (9.73)***		0.16000 (14.42)***	0.29230 (9.59)***
SIZE $_{it}$	β_3	-0.83330 (1407.71)***	-0.83400 (1409.40)***	-0.83390 (1407.48)***	-0.83390 (1409.95)***	-0.83560 (1413.34)***	-0.83600 (1413.03)***
STDEARN $_{it}$	β_4	0.00119 (36.28)***	0.00119 (35.83)***	0.00119 (35.97)***	0.00117 (34.79)***	0.00115 (33.22)***	0.00114 (33.11)***
LEV $_{it}$	β_5	0.20340 (9.53)***	0.20380 (9.54)***	0.20310 (9.55)***	0.19780 (9.35)***	0.19150 (8.99)***	0.18880 (8.80)***
LOSS $_{it}$	β_6	2.13720 (469.54)***	2.13470 (468.06)***	2.13270 (466.96)***	2.13630 (469.08)***	2.13760 (468.95)***	2.13980 (469.49)***
MB $_{it}$	β_7	0.00042 (0.24)	0.00041 (0.23)	0.00043 (0.26)	0.00045 (0.29)	0.00044 (0.32)	0.00044 (0.33)
LIT $_{it}$	β_8	0.18790 (8.34)***	0.19230 (8.74)***	0.18880 (8.42)***	0.17350 (7.15)***	0.17930 (7.64)***	0.18520 (8.12)***
ALTMAN $_{it}$	β_9	-0.00824 (24.21)***	-0.00821 (24.10)***	-0.00810 (23.48)***	-0.00779 (21.69)***	-0.00767 (21.30)***	-0.00778 (21.90)***

TABLE 16
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares
(continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
TENURE $_{it}$	β_{10}	-0.02470	-0.02470	-0.02510	-0.01820	-0.02050	-0.02580
		(0.34)	(0.34)	(0.35)	(0.18)	(0.23)	(0.37)
ROA $_{it}$	β_{11}	0.08190	0.08160	0.08060	0.07780	0.07670	0.07760
		(23.38)***	(23.23)***	(22.70)***	(21.11)***	(20.75)***	(21.34)***
TACC $_{it-1}$	β_{12}	0.00481	0.00485	0.00485	0.00499	0.00535	0.00553
		(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.07)
BIG4 $_{it}$	β_{13}	0.28000	0.26000	0.27910	0.37300	0.39230	0.38500
		(12.09)***	(10.52)***	(12.01)***	(22.40)***	(24.73)***	(23.75)***
R^2		0.1109	0.1110	0.1111	0.1109	0.1111	0.1112
Sample Size		36,970	36,970	36,970	36,970	36,970	36,970

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

(Chi-Square = 10.11). When considered jointly with industry specialization in column 3, both coefficients remain significant. However, the coefficient on industry specialization turns negative (Chi-Square = 4.30) while the coefficient on prior industry experience stays positive (Chi-Square = 9.73). I find very similar results using the portfolio share measure of prior industry experience in columns 4 through 6. The coefficients on industry specialization and prior industry experience remain significant and in the same direction as the market share tests in all three regressions. The consistency in these results (along with those in the main analyses) appears to be a strong indication that audit quality is closely associated with the duration of prior industry experience at the national level.

The results for the city level tests on audit quality in Table 17 are less consistent with the main results. Unlike the city level tests in Tables 4 and 5, I find a significant association between audit quality and prior industry experience. However, the association in these regressions is actually *negative*, suggesting that the duration of prior industry experience at the city level reduces an auditor's propensity to issue going concern opinions. This result holds for both the market share measure (columns 1 through 3) and portfolio share measure (columns 4 through 6). The implications of these results suggest that auditors with prior industry experience at the city level may suffer from auditor-client bonding to a much greater degree than national level experts. This result is not particularly surprising given the lack of an observed association between prior industry experience and audit quality at the city level in the main analyses. Still, this finding is somewhat troubling, and may require further research to assess the implications.

As an additional test of audit quality, I perform national and city level regressions on firms' ability to meet or beat analysts' forecasts. Much in the same way that audit quality should constrain earning management of discretionary accruals, audit quality may also be reflected in auditors' constraint of earnings management to meet earnings targets. I estimate the following model based on Reichelt and Wang (2010):

TABLE 17

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares

$$Prob\ (GC_{it}=1) = \beta_0 + \beta_1\ CURR\_ISPEC_{it} + \beta_2\ PRIOR\_EXP_{it} + \beta_3\ SIZE_{it} + \beta_4\ STDEARN_{it} + \beta_5\ LEV_{it} + \beta_6\ LOSS_{it} + \beta_7\ MB_{it} + \beta_8\ LIT_i + \beta_9\ ALTMAN_{it} + \beta_{10}\ TENURE_{it} + \beta_{11}\ ROA_{it} + \beta_{12}\ TACC_{it-1} + \beta_{13}\ BIG4_{it} + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
INTERCEPT	β_0	-2.08880 (16.26)***	-1.84080 (12.26)***	-1.87210 (12.64)***	-1.92710 (13.39)***	-1.81880 (11.82)***	-1.74680 (10.68)***
MKTLEADER $_{it}$ ***/ PORTLEADER*** $_{it}$	β_1	0.17930 (1.02)		0.18970 (1.13)	-0.22970 (1.89)		-0.17100 (1.00)
ln(MKTCONSEC) $_{it}$ ***/ ln(PORTCONSEC)*** $_{it}$	β_2		-0.28720 (5.30)**	-0.29250 (5.42)**		-0.26880 (4.48)**	-0.24280 (3.53)*
SIZE $_{it}$	β_3	-0.82110 (170.00)***	-0.82270 (168.67)***	-0.82220 (168.46)***	-0.81900 (168.03)***	-0.82230 (168.63)***	-0.82010 (167.13)***
STDEARN $_{it}$	β_4	0.00054 (1.66)	0.00054 (1.66)	0.00052 (1.52)	0.00055 (1.79)	0.00054 (1.64)	0.00054 (1.66)
LEV $_{it}$	β_5	0.11870 (0.29)	0.11960 (0.29)	0.11110 (0.25)	0.12840 (0.34)	0.11990 (0.29)	0.12200 (0.30)
LOSS $_{it}$	β_6	2.58170 (42.12)***	2.58180 (42.07)***	2.58070 (42.04)***	2.58510 (42.11)***	2.58170 (42.09)***	2.58380 (42.07)***
MB $_{it}$	β_7	-0.00108 (0.07)	-0.00084 (0.04)	-0.00065 (0.03)	-0.00125 (0.10)	-0.00072 (0.03)	-0.00076 (0.04)
LIT $_{it}$	β_8	-0.20100 (1.23)	-0.18570 (1.05)	-0.17250 (0.90)	-0.21530 (1.42)	-0.17810 (0.96)	-0.18320 (1.02)
ALTMAN $_{it}$	β_9	-0.04050 (29.18)***	-0.04010 (28.68)***	-0.04030 (28.75)***	-0.04100 (29.44)***	-0.04040 (29.08)***	-0.04090 (29.31)***

TABLE 17
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares (continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
$TENURE_{it}$	β_{10}	-0.22210 (4.03)**	-0.13410 (1.34)	-0.13970 (1.45)	-0.22110 (4.00)**	-0.14010 (1.46)	-0.15110 (1.68)
ROA_{it}	β_{11}	-1.00530 (24.72)***	-0.98640 (24.25)***	-0.99910 (24.56)***	-0.98030 (23.95)***	-0.98440 (24.08)***	-0.97610 (23.77)***
$TACC_{it-1}$	β_{12}	0.13240 (4.12)**	0.12470 (3.63)*	0.12750 (3.77)*	0.12620 (3.75)*	0.12410 (3.57)*	0.12200 (3.44)*
$BIG4_{it}$	β_{13}	0.33160 (2.88)*	0.65070 (8.41)***	0.60220 (6.90)***	0.34300 (3.23)*	0.58560 (7.54)***	0.53630 (6.04)**
R^2		0.1156	0.1160	0.1161	0.1157	0.1159	0.1160
Sample Size		9,234	9,234	9,234	9,234	9,234	9,234

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

$$Prob\ (MEET_{it}=1) = \beta_0 + \beta_1\ CURR\_ISPEC_{it} + \beta_2\ PRIOR\_EXP_{it} + \beta_3\ SIZE_{it} + \beta_4\ STDEARN_{it} + \beta_5\ LEV_{it} + \beta_6\ LOSS_{it} + \beta_7\ MB_{it} + \beta_8\ LIT_i + \beta_9\ ALTMAN_{it} + \beta_{10}\ TENURE_{it} + \beta_{11}\ ROA_{it} + \beta_{12}\ TACC_{it-1} + \beta_{13}\ BIG4_{it} + \beta_{14}\ STDFOR_{it} + \beta_{15}\ LOGEST_{it} + year\ dummies + \varepsilon_{it} \quad (5)$$

The dependent variable, $MEET_{it}$, is an indicator variable with a value of "1" if firm *i* exceeded the mean of analysts' forecast for year *t* by one cent per share or more, and "0" otherwise. $STDFOR_{it}$ is the standard deviation of analysts' earnings forecasts for company *i* in year t. $LOGEST_{it}$ is the natural logarithm of the number of analysts following company *i* in year *t*. The remaining variables are as previously defined. Because high quality auditors are more likely to constrain upward earnings, I would hypothesize my measures of industry specialization and prior industry experience in β_1 and β_2 to be negatively associated with the dependent variable.

Table 18 contains the results of my national level tests on equation (5). Unlike my other national level audit quality tests, I do not find significant results for prior industry experience using the market share measure in columns 1 through 3. I do find a negative coefficient on prior industry experience for the portfolio share measure in column 5 (Chi-Square = 4.43). However, this significant result disappears when I consider industry specialization and prior industry experience jointly in column 6 (Chi-Square = 0.52 and Chi-Square = 2.40, respectively). There appears to be some evidence that prior industry experience constrains upward earnings at the national level. However, the results for these tests are far weaker than my other national level audit quality regressions.

I examine equation (5) at the city level in Table 19. For both the market and portfolio share measures, the coefficient on prior industry experience is insignificant in all regressions. This finding is fairly consistent with the main audit quality analyses in Tables 4 and 5 that fail to find any significant associations at the city level. Taken together, these results may suggest that the role of constraining earnings management by industry expert auditors is fairly isolated to the

TABLE 18

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares

$$Prob\ (MEET_{it}=1) = \beta_0 + \beta_1\ CURR\_ISPEC_{it} + \beta_2\ PRIOR\_EXP_{it} + \beta_3\ SIZE_{it} + \beta_4\ STDEARN_{it} + \beta_5\ LEV_{it} + \beta_6\ LOSS_{it} + \beta_7\ MB_{it} + \beta_8\ LIT_i + \beta_9\ ALTMAN_{it} + \beta_{10}\ TENURE_{it} + \beta_{11}\ ROA_{it} + \beta_{12}\ TACC_{it-1} + \beta_{13}\ BIG4_{it} + \beta_{14}\ STDFOR_{it} + \beta_{15}\ LOGEST_{it} + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
INTERCEPT	β_0	-0.49820 (34.48)***	-0.50150 (34.96)***	-0.49880 (34.57)***	-0.49410 (33.82)***	-0.49520 (34.07)***	-0.49940 (34.48)***
MKTLEADER $_{it}$ ***/ PORTLEADER*** $_{it}$	β_1	0.04060 (1.99)		0.14370 (3.85)**	-0.05990 (2.55)		0.06320 (0.52)
ln(MKTCONSEC) $_{it}$ ***/ ln(PORTCONSEC)*** $_{it}$	β_2		0.00939 (0.48)	-0.05260 (2.34)		-0.03670 (4.43)**	-0.06330 (2.40)
SIZE $_{it}$	β_3	0.03860 (16.09)***	0.03910 (16.55)***	0.03890 (16.39)***	0.04190 (18.75)***	0.04270 (19.41)***	0.04250 (19.23)***
STDEARN $_{it}$	β_4	0.00004 (0.40)	0.00004 (0.39)	0.00004 (0.41)	0.00004 (0.42)	0.00004 (0.40)	0.00004 (0.38)
LEV $_{it}$	β_5	-0.16240 (6.48)**	-0.16340 (6.56)**	-0.15920 (6.22)**	-0.15620 (5.97)**	-0.15160 (5.61)**	-0.15060 (5.54)**
LOSS $_{it}$	β_6	-0.34780 (72.61)***	-0.34690 (72.26)***	-0.34850 (72.91)***	-0.34740 (72.50)***	-0.34850 (72.96)***	-0.34900 (73.15)***
MB $_{it}$	β_7	0.00001 0.00	0.00002 0.00	0.00002 0.00	0.00002 (0.01)	0.00003 (0.01)	0.00003 (0.01)
LIT $_{it}$	β_8	0.19170 (39.86)***	0.19110 (39.55)***	0.18960 (38.93)***	0.18570 (37.22)***	0.18220 (35.58)***	0.18110 (35.04)***
ALTMAN $_{it}$	β_9	-0.00298 (1.73)	-0.00300 (1.76)	-0.00298 (1.73)	-0.00322 (1.98)	-0.00329 (2.05)	-0.00327 (2.02)

TABLE 18
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – National Market and Portfolio Shares
(continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
TENURE $_{it}$	β_{10}	0.00702	0.00693	0.00850	0.00599	0.00560	0.00576
		(0.17)	(0.16)	(0.24)	(0.12)	(0.10)	(0.11)
ROA $_{it}$	β_{11}	0.49610	0.49770	0.49040	0.48850	0.48550	0.48610
		(25.67)***	(25.83)***	(25.07)***	(24.82)***	(24.50)***	(24.55)***
TACC $_{it-1}$	β_{12}	-0.23530	-0.23540	-0.23420	-0.23700	-0.23680	-0.23610
		(13.04)***	(13.04)***	(12.95)***	(13.17)***	(13.14)***	(13.06)***
BIG4 $_{it}$	β_{13}	0.19520	0.20210	0.19410	0.19540	0.19440	0.19770
		(14.94)***	(16.13)***	(14.77)***	(15.09)***	(15.04)***	(15.42)***
STDFOR $_{it}$	β_{14}	0.01660	0.01650	0.01720	0.01730	0.01760	0.01770
		(0.39)	(0.39)	(0.42)	(0.43)	(0.45)	(0.45)
LOGEST $_{it}$	β_{15}	0.03380	0.03360	0.03370	0.03260	0.03230	0.03230
		(5.18)**	(5.11)**	(5.15)**	(4.82)**	(4.72)**	(4.73)**
R^2		0.0229	0.0228	0.2300	0.0229	0.0230	0.0230
Sample Size		24,034	24,034	24,034	24,034	24,034	24,034

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

TABLE 19

Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares

$$Prob\ (MEET_{it}=1) = \beta_0 + \beta_1\ CURR\_ISPEC_{it} + \beta_2\ PRIOR\_EXP_{it} + \beta_3\ SIZE_{it} + \beta_4\ STDEARN_{it} + \beta_5\ LEV_{it} + \beta_6\ LOSS_{it} + \beta_7\ MB_{it} + \beta_8\ LIT_i + \beta_9\ ALTMAN_{it} + \beta_{10}\ TENURE_{it} + \beta_{11}\ ROA_{it} + \beta_{12}\ TACC_{it-1} + \beta_{13}\ BIG4_{it} + \beta_{14}\ STDFOR_{it} + \beta_{15}\ LOGEST_{it} + year\ dummies + \varepsilon_{it}$$

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
INTERCEPT	β_0	-0.61190 (18.12)***	-0.60290 (15.91)***	-0.60240 (15.88)***	-0.64420 (19.9)***	-0.62620 (17.02)***	-0.63390 (17.42)***
MKTLEADER $_{it}$ / ***PORTLEADER*** $_{it}$	β_1	0.03440 (0.47)		0.03410 (0.46)	0.12380 (5.59)**		0.12610 (5.57)**
ln(MKTCONSEC) $_{it}$ / ***ln(PORTCONSEC)*** $_{it}$	β_2		-0.01030 (0.05)	-0.00936 (0.04)		0.01160 (0.07)	-0.00990 (0.05)
SIZE $_{it}$	β_3	0.06990 (13.06)***	0.07130 (13.65)***	0.07010 (13.1)***	0.06040 (9.29)***	0.07090 (13.49)***	0.06040 (9.29)***
STDEARN $_{it}$	β_4	-0.00007 (0.41)	-0.00007 (0.40)	-0.00007 (0.41)	-0.00009 (0.72)	-0.00007 (0.41)	-0.00009 (0.72)
LEV $_{it}$	β_5	-0.24810 (4.43)**	-0.24550 (4.34)**	-0.24940 (4.46)**	-0.24930 (4.48)**	-0.24220 (4.22)**	-0.25100 (4.52)**
LOSS $_{it}$	β_6	-0.34300 (22.47)***	-0.34390 (22.61)***	-0.34280 (22.43)***	-0.34640 (22.91)***	-0.34460 (22.69)***	-0.34610 (22.86)***
MB $_{it}$	β_7	-0.00476 (3.44)*	-0.00478 (3.45)*	-0.00475 (3.43)*	-0.00470 (3.34)*	-0.00480 (3.47)*	-0.00469 (3.33)*
LIT $_{it}$	β_8	0.16190 (8.21)***	0.16190 (8.19)***	0.16260 (8.25)***	0.15580 (7.59)***	0.16020 (8.01)***	0.15660 (7.64)***
ALTMAN $_{it}$	β_9	-0.00336 (0.64)	-0.00337 (0.65)	-0.00335 (0.64)	-0.00270 (0.43)	-0.00340 (0.66)	-0.00268 (0.42)

TABLE 19
Regressions of Audit Quality on Auditor Industry Specialization and Prior Industry Experience – City Market and Portfolio Shares (continued)

		Market Share			Portfolio Share		
		(1)	(2)	(3)	(4)	(5)	(6)
Variable		**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**	**Coefficient (Chi-Square)**
$TENURE_{it}$	β_{10}	-0.03780	-0.03350	-0.03590	-0.03580	-0.03800	-0.03380
		(1.26)	(0.92)	(1.05)	(1.14)	(1.19)	(0.94)
ROA_{it}	β_{11}	0.19790	0.19370	0.19700	0.20840	0.19560	0.20780
		(1.55)	(1.49)	(1.54)	(1.73)	(1.52)	(1.72)
$TACC_{it-1}$	β_{12}	-0.17810	-0.17480	-0.17830	-0.17910	-0.17430	-0.17950
		(1.90)	(1.83)	(1.90)	(1.92)	(1.82)	(1.93)
$BIG4_{it}$	β_{13}	0.26150	0.27750	0.26850	0.31450	0.26300	0.32120
		(10.01)***	(9.82)***	(8.99)***	(14.03)***	(9.40)***	(12.93)***
$STDFOR_{it}$	β_{14}	0.08000	0.08030	0.07970	0.08040	0.08100	0.08010
		(2.00)	(2.02)	(1.99)	(2.03)	(2.06)	(2.01)
$LOGEST_{it}$	β_{15}	0.02080	0.01980	0.02100	0.01840	0.01940	0.01860
		(0.53)	(0.49)	(0.54)	(0.42)	(0.46)	(0.43)
R^2		0.0214	0.0214	0.0214	0.0221	0.0214	0.0222
Sample Size		7,071	7,071	7,071	7,071	7,071	7,071

*See Appendix for variable definitions. *, **, *** indicate significance at the 10 percent, 5 percent, and 1 percent level, respectively. All p-values are based on White's (1980) heteroskedasticity-corrected standard errors. All continuous variables are Winsorized at 1% and 99%.*

national level, since neither the discretionary accruals nor the analyst forecasts test provided significant results at the city level.

4.3 Sample Volatility Tests

In order to address concerns about potential volatility in my sample, I conduct several additional tests of my hypotheses. For the first of these, I repeat my national level tests excluding firm data for fiscal years 2008 and 2009.[14] Given the economic environment during this period of recession, it is likely that several of the financial measures in my model were exogenously affected. Additionally, prior studies suggest that auditors responded to the recession by lowering audit fees to retain clients during this period (Beardsley et al. 2014; Ettredge et al. 2014). Given that these issues may be relevant to my results, I reperform my tests without the data from the recession years in the sample. In untabulated analyses, I find that my results with the sample excluding the recession years are quantitatively similar to my main results.

Another potential issue exists with the presence of former clients of Andersen in the sample. When Andersen went out of business in 2002, its clients and staff were absorbed by other accounting firms. Accordingly, auditors' levels of industry expertise may have changed substantially during this period. This event is one example of why contemporaneous measures of industry expertise may not be effective. While the absorption of Andersen clients and personnel is not reflected in my measures of prior industry experience, it is likely that this would bias against me finding results. The fact that I do find some results, then, should alleviate any concerns. Nevertheless, I reestimate my models with a reduced sample excluding any former clients of Andersen. My untabulated results are consistent with my main analyses in Tables 3 through 10.

One final sample issue exists with the major accounting firm mergers during the 1990s. During the period from 1989 to 2002, the Big 8 were reduced to the Big 4 through a series of mergers

[14] I only repeat my national level tests because the sample period for the city level tests doesn't begin until 2010.

and breakups. Aside from the dissolution of Andersen (discussed above), the only merger large firm merger that occurred during my sample period was the Price Waterhouse merger with Coopers & Lybrand in 1998. While it is unlikely that this single merger would significantly influence my results, I reperform my analysis with reestimated industry expertise measures to reflect the merger in 1998. While it is worth noting that PriceWaterhouse Coopers became an expert in several industries in 1998 by virtue of this merger, my results in untabulated analysis are nearly identical to my main results.

4.4 Additional Regression Results

I perform some additional regressions to answer a few potential remaining issues. One notable exclusion from my main regressions is industry fixed effects. This exclusion is deliberate, and consistent with recent previous studies (Reichelt and Wang 2010; Cahan et al. 2013; Bills et al. 2015). Furthermore, this exclusion is justifiable on the basis that industry characteristics are already measured in my models as part of my secondary hypotheses (**H2**, **H3**, and **H4**). However, I address any potential concerns regarding this exclusion by reperforming my analyses with industry fixed effects in the models. In untabulated results, I find results consistent with my main analyses in Tables 3 through 10.

Along the same lines, there is a potential question with regard to fixed effects related to MSAs in the city level analyses. My city level industry specialization and prior industry experience measures are estimated at the MSA level, so this should preclude the need for MSA fixed effects. Still, I reperform my city level analyses with MSA fixed effects included in my model. My untabulated results for these tests are quantitatively similar to my main city level results.

Finally, there is a question of whether clustering at the firm level is necessary for my regression analyses. While the same firm can represent multiple observations in my sample, each observation represents an independent firm-year, so it is unlikely that clustering is necessary.

Nevertheless, I reperform all of my tests with clustered standard errors at the firm level. While I do notice that most of my coefficients of interest are slightly less significant for these tests, the untabulated results are quantitatively similar to my main results.

CHAPTER VI

CONCLUSION

This study examines auditor industry specialization in the context of prior industry experience to determine if the length of time that an auditor has been an industry expert is associated with the quality and pricing of audit services that industry specialist auditors provide. Learning curve theory asserts that prior work experience is associated with greater subsequent efficiency and knowledge (Henderson 1984; Adler and Clark 1991). This study examines whether this association holds in the industry specialization setting. Specifically, I develop measures of prior industry experience to determine how they are associated with current period audit quality and audit fees. Furthermore, I perform several tests based on industry characteristics to determine how audit quality and audit fees vary across different types of industries, and whether prior industry experience mediates these associations.

I find that, at the national level, prior industry experience is positively associated with audit quality for both market share and portfolio share measures of industry specialization. I also find some support that the quality of audit services across different types of industries is influenced by the duration if industry experience. At the city level, I do not find support prior industry experience is associated with audit quality, despite finding strong associations for current period measures of industry specialization. This finding suggests that prior industry experience is more relevant at the national level than at the city level with respect to audit quality.

I also find significant associations between audit fees and prior industry experience at the national level. However, the direction of this association depends on whether prior experience is measured using market share or portfolio share. Market share prior industry experience yields a positive association, suggesting that it represents the market dominance perspective of industry expertise. Portfolio share prior industry experience yields a negative association, suggesting that it represents the efficiency perspective of industry expertise. However, the results of the regressions for both measures suggest that audit fees for industry specialist auditors are decreasing in the duration of prior industry experience. The results on my tests on industry characteristics are also generally consistent in the finding that prior industry experience is associated with incrementally lower audit fees. Finally, my city level audit fee tests reveal a positive association with prior industry experience for both the market share and portfolio share measures. This finding is particularly interesting given the earlier finding that city level industry experience does not appear to improve audit quality. This result may imply that clients of auditors with prior industry experience are willing to pay a premium for prior industry experience despite the lack of evidence that prior industry experience improves audit quality.

This study is the first to evaluate auditor industry expertise by taking into account both the duration and level of prior industry experience; and opens up several opportunities for future research. For example, future studies might examine if low balling for first year audit engagements is less predominant when an auditor is already an established industry expert. This study could also be expanded to an international setting to examine whether auditors are more or less likely to possess prior industry experience in countries with weaker investor protection or weaker accounting and regulatory regimes. Finally, it is possible that prior industry experience is representative of auditor reputation and that an auditor is more likely to leave a client when it is already an established expert in the client's industry.

REFERENCES

Abernathy, W. and K. Wayne. 1974. Limits of the Learning Curve. *Harvard Business Review* 52 (5): 109-119.

Adler, P. and K. Clark. 1991. Behind the Learning Curve: A Sketch of the Learning Process. *Management Science* 37 (3): 267-281.

Altman, E. 1983. *Corporate Financial Distress: A Complete Guide to Predicting, Avoiding, and Dealing with Bankruptcy*. New York: Wiley.

Almutairi, A., K. Dunn, and T. Skantz. 2009. Auditor Tenure, Auditor Specialization, and Information Asymmetry. *Managerial Auditing Journal* 24 (7): 600-623.

Arnold, V., P. Collier, S. Leech, and S. Sutton. 2000. The Effect of Experience and Complexity on Order and Recency Bias in Decision Making by Professional Accountants. *Accounting & Finance* 40 (2): 109-134.

Audousset-Coulier, S., A. Cazavan-Jeny, and L. Jiang. 2013. A Re-Examination of the Effect of Industry Specialization on the Pricing of Audit Services. Working Paper, Concordia University and ESSEC Business School.

Balsam, S., J. Krishnan, and J. Yang. 2003. Auditor Industry Specialization and Earnings Quality. *Auditing: A Journal of Practice & Theory* 22 (2): 71-97.

Bartov, E., F. Gul, and J. Tsui. 2000. Discretionary-accruals Models and Audit Qualifications. *Journal of Accounting and Economics* 30 (3): 421-452.

Basioudis, I. and J. Francis. 2007. Big 4 Audit Fee Premiums for National and Office-Level Industry Leadership in the United Kingdom. *Auditing: A Journal of Practice & Theory* 26 (2): 143-166.

Beardsley, E., D. Lassila, and T. Omer. 2014. How Do Audit Firms Respond to Fee Pressure? Evidence of Increased Nonaudit Services and Their Impact on Audit Quality. Working Paper, Texas A&M University and University of Nebraska-Lincoln.

Behn, B., J-H. Choi, and T. Kang. 2008. Audit Quality and Properties of Analyst Earnings Forecasts. *The Accounting Review* 83 (2): 327-349.

Bills, K., D. Jeter, and S. Stein. 2015. Auditor Industry Specialization and Evidence of Cost Efficiencies in Homogenous Industries. *The Accounting Review* (pending).

Brooks, L., A. Cheng, J. Johnston, and K. Reichelt. 2011. When Does Audit Quality Start to Decline in Firm Audit Tenure? – An International Analysis. Working Paper, City University of Hong Kong, Hong Kong Polytechnic University, Louisiana State University, and Washington State University.

Brooks, L., A. Cheng, and K. Reichelt. 2013. Audit Firm Tenure and Audit Quality: Evidence from U.S. Firms. Working Paper, Hong Kong Polytechnic University, Louisiana State University, and Washington State University.

Cahan, S., J. Godfrey, J. Hamilton, and D. Jeter. 2013. The Association between Client-Specific Investment Opportunities and Audit Fees of Industry Specialists. Working Paper, University of Auckland, Australian National University, La Trobe University, and Vanderbilt University.

Cahan, S., D. Jeter, and V. Naiker. 2011. Are All Industry Specialist Auditors the Same? *Auditing: A Journal of Practice & Theory* 30 (4): 191–222.

Cairney, T. and G. Young. 2006. Homogenous Industries and Auditor Specialization: An Indication of Production Economies. *Auditing: A Journal of Practice & Theory* 25 (1): 49-67.

Carson, E. 2009. Industry Specialization by Global Audit Firm Networks. *The Accounting Review* 84 (2): 355-382.

Casterella, J., J. Francis, B. Lewis, and P. Walker. 2004. Auditor Industry Specialization, Client Bargaining Power, and Audit Pricing. *Auditing: A Journal of Practice & Theory* 23 (1): 123-140.

Chin, C. and H. Chi. 2009. Reducing Restatements with Increased Industry Expertise. *Contemporary Accounting Research* 26 (3): 729-765.

Choi, J-H., C. Kim, J-B. Kim, and Y. Zang. 2010. Audit Office Size, Audit Quality, and Audit Pricing. *Auditing: A Journal of Practice & Theory* 29 (1): 73–97.

Craswell, A., J. Francis, and S. Taylor. 1995. Auditor Brand Name Reputations and Industry Specialization. *Journal of Accounting and Economics* 20 (3): 297-322.

DeAngelo, L. 1981a. Auditor Size and Audit Quality. *Journal of Accounting and Economics* 3 (3): 183-199.

DeAngelo, L. 1981b. Auditor Independence, 'Low Balling', and Disclosure Regulation. *Journal of Accounting and Economics* 3 (2): 113-127.

Dechow, P., R. Sloan, and A. Sweeney. 1995. Detecting Earnings Management. *The Accounting Review* 70 (2) 193-225.

DeFond, M., J. Francis, and T. Wong. 2000. Auditor Industry Specialization and Market Segmentation: Evidence from Hong Kong. *Auditing: A Journal of Practice & Theory* 19 (1): 49-66.

DeFond, M. and J. Zhang. 2014. A Review of Archival Auditing Research. Journal of Accounting and Economics 58 (2): 275-326.

Deis, D. and G. Giroux. 1996. The Effect of Auditor Change on Audit Fees, Audit Hours, and Audit Quality. *Journal of Accounting and Public Policy* 15 (1): 55-76.

Dunn, K. and B. Mayhew. 2004. Audit Firm Industry Specialization and Client Disclosure Quality. *Review of Accounting Studies* 9 (1): 35-58.

Ettredge, M. and R. Greenberg. 1990. Determinants of Fee Cutting on Initial Audit Engagements. *Journal of Accounting Research* 28 (Spring): 198-210.

Ettredge, M., C. Li, and E. Emeigh. 2014. Fee Pressure and Audit Quality. *Accounting, Organizations and Society* 39 (4): 247-263.

Ferguson, A., J. Francis, and D. Stokes. 2003. The Effects of Firm-Wide and Office-Level Industry Expertise on Audit Pricing. *The Accounting Review* 78 (2): 429-448.

Ferguson, A., J. Francis, and D. Stokes. 2006. What Matters in Audit Pricing: Industry Specialization or Overall Market Leadership? *Accounting and Finance* 46 (1): 97–106.

Ferguson, A. and D. Stokes, D. 2002. Brand Name Audit Pricing, Industry Specialization, and Leadership Premiums Post Big-8 and Big 6 Mergers. *Contemporary Accounting Research* 19 (1): 77–110.

Francis, J., K. Reichelt, and D. Wang. 2005. The Pricing of National and City-Specific Reputations for Industry Expertise in the U.S. Audit Market. *The Accounting Review* 80 (1): 113-136.

Francis, J. and M. Yu. 2009. Big 4 office size and audit quality. *The Accounting Review*, 84 (5): 1521-1552.

Francis, J., J. Gunn, and S. Seavey. 2013. Industry Complexity, Earnings Quality, and Auditor Expertise. Working Paper, University of Missouri and University of Nebraska.

Fung, S., F. Gul, and J. Krishnan. 2012. City-Level Auditor Industry Specialization, Economies of Scale, and Audit Pricing. *The Accounting Review* 87 (4): 1281-1307.

Gaver, J. and S. Utke. 2014. Audit Quality and Specialist Tenure. Working Paper, University of Georgia.

Goodwin, J. and D. Wu. 2013. Is the Effect of Industry Expertise on Audit Pricing an Office-Level or a Partner-Level Phenomenon? *Review of Accounting Studies*, Forthcoming.

Gramling, A. and D. Stone 2001. Audit Firm Industry Expertise: A Review and Synthesis of the Archival Literature. *Journal of Accounting Literature* 20: 1–27.

Greene, R. and K. Barrett. 1994. Auditing the accounting firms. *Financial World* 163 (20): 30–55.

Gul, F., S. Fung, and B. Jaggi. 2009. Earnings Quality: Some Evidence on the Role of Auditor Tenure and Auditors' Industry Expertise. *Journal of Accounting and Economics* 47 (3): 265-287.

Habib, A. 2011. Audit Firm Industry Specialization and Audit Outcomes: Insights from Academic Literature. *Research in Accounting Regulation* 23 (2): 114-129.

Henderson, B. 1984. The Application and Misapplication of the Experience Curve. *Journal of Business Strategy* 4 (3): 3 - 9.

Hogan, C. and D. Jeter. 1999. Industry Specialization by Auditors. *Auditing: A Journal of Practice & Theory* 18 (1): 1-17.

Huang, H-W., L-L. Liu, K. Raghunandan, and D. Rama. 2007. Auditor Industry Specialization, Client Bargaining Power, and Audit Fees: Further Evidence. *Auditing: A Journal of Practice & Theory* 26 (1): 147–158.

Johnson, V., I. Khurana, and J. Reynolds. 2002. Audit-firm Tenure and the Quality of Financial Reporting. *Contemporary Accounting Research* 19 (4): 637-660.

Jones, J. 1991. Earnings Management during Import Relief Investigations. *Journal of Accounting Research* 29 (2): 193–228.

Knechel, R., V. Naiker, and G, Pacheco. 2007. Does Auditor Industry Specialization Matter? Evidence from Market Reaction to Auditor Switches. *Auditing: A Journal of Practice & Theory* 26 (1): 19-45.

Kothari, S., A. Leone, and C. Wasley. 2005. Performance Matched Discretionary Accrual Measures. *Journal of Accounting and Economics* 39 (1): 163–197.

Krishnan, G. 2003. Does Big 6 Auditor Industry Expertise Constrain Earnings Management? *Accounting Horizons* 17 (Supplement): 1-16.

Krishnan, G. 2005. The Association Between Big 6 Auditor Industry Expertise and the Asymmetric Timeliness of Earnings. *Journal of Accounting, Auditing & Finance* 20 (3): 209-228.

Krishnan, J. 2001. A Comparison of Auditor's Self-Reported Industry Expertise and Alternative Measures of Industry Specialization. *Asia-Pacific Journal of Accounting and Economics* 8 (2): 127–142.

Krishnan, J., C. Li, and Q. Wang. 2013. Auditor Industry Expertise and Cost of Equity. *Accounting Horizons* 27 (4): 667-691.

Kwon, S. 1996. The Impact of Competition Within the Client's Industry on the Auditor Selection Decision. *Auditing: A Journal of Practice & Theory* 15 (1): 53-69.

Kwon, S., C. Lim, and P. Tan. 2007. Legal Systems and Earnings Quality: The Role of Auditor Industry Specialization. *Auditing: A Journal of Practice & Theory* 26 (2): 25-55.

Lieberman, M. 1984. The Learning Curve and Pricing in the Chemical Processing Industries. *The Rand Journal of Economics* 15 (2): 213-228.

Lim, C-Y. and H-T. Tan. 2008. Non-Audit Service Fees and Audit Quality: The Impact of Auditor Specialization. *Journal of Accounting Research* 46 (1): 199-246.

Lim, C. and P. Tan. 2009. Control Divergence, Timeliness in Loss Recognition, and the Role of Auditor Specialization: Evidence from Around the World. *Journal of Accounting, Auditing & Finance* 24 (2): 295-332.

Mayhew, B. and M. Wilkins. 2003. Audit Firm Industry Specialization as a Differentiation Strategy: Evidence from Fees Charged to Firms Going Public. *Auditing: A Journal of Practice & Theory* 22 (2): 33-52.

Menon, K. and D. Williams. 2001. Long-Term Trends in Audit Fees. *Auditing: A Journal of Practice & Theory* 20 (1): 115-136.

Minutti-Meza, M. 2013. Does Auditor Industry Specialization Improve Audit Quality? *Journal of Accounting Research* 51 (4): 779-817.

Mitra, S. and M. Hossain. 2010. Auditor's Industry Specialization and Earnings Management of Firms Reporting Internal Control Weaknesses Under SOX Section 404. Working Paper, Wayne State University and University of Memphis.

Moore, M. and C. Bennett. 1995. The Learning Curve for Laparoscopic Cholecystectomy. *The American Journal of Surgery* 170 (1): 55-59.

Neal, T. and R. Riley, Jr. 2004. Auditor Industry Specialist Research Design. *Auditing: A Journal of Practice & Theory* 23 (2): 169-177.

Numan, W. and M. Willekens. 2012. An Empirical Test of Spatial Competition in the Audit Market. *Journal of Accounting and Economics* 53 (1-2): 450-465.

Owhoso, V., W. Messier Jr., and J. Lynch Jr. 2002. Error Detection by Industry-Specialized Teams During Sequential Audit Review. *Journal of Accounting Research* 40 (3): 883-900.

Palmrose, Z. 1986. Audit Fees and Auditor Size: Further Evidence. *Journal of Accounting Research* 24 (1): 97-110.

Payne, J. 2008. The Influence of Audit Firm Specialization on Analysts' Forecast Errors. *Auditing: A Journal of Practice & Theory* 27 (2): 109-136.

Pearson, T. and G. Trompeter. 1994. Competition in the Market for Audit Services: The Effect of Supplier Concentration on Audit Fees. *Contemporary Accounting Research* 11 (1): 115-135.

Public Accounting Report. 1995. New PW Chair Advances Industry Alignment. *Public Accounting Report* (June 30): 1, 4.

Reichelt, K. and D. Wang. 2010. National and Office-Specific Measures of Auditor Industry Expertise and Effects on Audit Quality. *Journal of Accounting Research* 48 (3): 647–686.

Romanus, R., J. Maher, and D. Fleming. 2008. Auditor Industry Specialization, Auditor Changes, and Accounting Restatements. *Accounting Horizons* 22 (4): 389-413.

Schauer, P., S. Ikramuddin, G. Hamad, and W. Gourash. 2003. The Learning Curve for Laparoscopic Roux-en-Y Gastric Bypass is 100 Cases. *Surgical Endoscopy and Other Interventional Techniques* 17 (2): 212-215.

Simunic, D. 1980. The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research* 18 (1): 161-190.

Stanley, J. and F. DeZoort. 2007. Audit Firm Tenure and Financial Restatements: An Analysis of Industry Specialization and Fee Effects. *Journal of Accounting and Public Policy* 26 (2): 131-159.

Yardley, J., N. Kauffman, T. Cairney, and D. Albrecht. 1992. Supplier Behavior in the US Audit Market. *Journal of Accounting Literature* 11 (1): 151-184.

Yelle, L. 1979. The Learning Curve: Historical Review and Comprehensive Survey. *Decision Sciences* 10 (2): 302-328.

Zerni, M. 2012. Audit Partner Specialization and Audit Fees: Some Evidence from Sweden. *Contemporary Accounting Research* 29 (1): 312-340.

APPENDIX

Variable Definitions

Dependent Variables

$DACC_{it}$	The negative of the absolute value of performance-adjusted discretionary accruals for company *i* in year *t*
$FEES_{it}$	The natural logarithm of total audit fees for company *i* in year *t*

Variables of Interest (*CURR_ISPEC* and *PRIOR_EXP*)

$MKTLEADER_{it}$	An indicator variable equal to "1" if company *i*'s auditor's annual market share in the company's industry is at least 30% (50%) of the national (city) market for year *t*, and "0" otherwise
$PORTLEADER_{it}$	An indicator variable equal to "1" if company *i*'s auditor's annual portfolio share in the company's industry is one of the top three portfolio shares for the auditor across all industries in year *t*, and "0" otherwise
$MKTCONSEC_{it}$	The number of consecutive years that company *i*'s auditor has been a market leader within the company's industry
$ln(MKTCONSEC_{it})$	The natural logarithm of the $MKTCONSEC_{it}$ variable
$MKTCONSEC^2_{it}$	The squared value of the $MKTCONSEC_{it}$ variable
$PORTCONSEC_{it}$	The number of consecutive years that company *i*'s auditor has maintained a portfolio share within the company's industry that is among the top three portfolio shares across all industries for the auditor
$ln(PORTCONSEC_{it})$	The natural logarithm of the $PORTCONSEC_{it}$ variable
$PORTCONSEC^2_{it}$	The squared value of the $PORTCONSEC_{it}$ variable

Variable Definitions (continued)

Industry Characteristic Variables

$NUMCLIENTS_{it}$	The natural logarithm of the number of clients that company *i*'s auditor audited within the company's industry in year *t*
MOX_i	The mean of the correlation coefficients of the percentage change in operating expenses for all companies in company *i*'s industry
$COMPLEX_i$	An indicator variable with a value of "1" if the AICPA has issued specific accounting guidance for company *i*'s industry, and "0" otherwise

Control Variables

$SIZE_{it}$	The natural logarithm of the market value of equity for company *i* at the end of the year *t*
CFO_{it}	Cash flows from company *i*'s operations, scaled by total assets at the end of the previous year
$STDEARN_{it}$	The standard deviation of income before extraordinary items for company *i* over the past four years
LEV_{it}	Total long-term debt divided by total assets for company *i* in year *t*
$LOSS_{it}$	An indicator variable with a value of "1" is company *i*'s net income for year *t* is negative, and "0" otherwise
MB_{it}	The market-to-book ratio of equity value for company *i* in year *t*
$ALTMAN_{it}$	Altman's (1983) Z-score for company *i* in year *t*
$TACC_{it-1}$	Total accruals (net income before continuing operations minus cash flows from operations) for company *i* in the prior year, scaled by total assets for the company at the end of the previous year
$GROWTH_{it}$	The percentage of company *i*'s sales growth from the prior period
$BIG4_{it}$	An indicator variable with a value of "1" if company *i*'s auditor in year *t* is a Big 4 accounting firm, and "0" otherwise
$TENURE_{it}$	The natural logarithm of the number of years that company *i* has retained the same auditor

Variable Definitions (continued)

Control Variables (continued)

$ASSETS_{it}$	The natural logarithm of total assets for company *i* in year *t*
$BUSSEG_{it}$	The natural logarithm of the number of company *i*'s business and geographic segments in year *t*
$CATA_{it}$	The ratio of company i's current assets to total assets in year *t*
$QUICK_{it}$	The ratio of quick assets (current assets less inventories) to current liabilities for company *i* in year *t*
ROA_{it}	The return on assets (net income divided by average total assets) for company *i* for year *t*
$FOREIGN_{it}$	The ratio of foreign revenues to total revenues for company *i* in year *t*
GC_{it}	An indicator variable with a value of "1" if the auditor issues a going concern opinion for company *i* in year *t*, and "0" otherwise
YE_{it}	An indicator variable with a value of "1" if company *i* has a non-December 31st year-end, and "0" otherwise
$FIRSTYR_{it}$	An indicator variable with a value of "1" if the current year is the first year that the auditor has audited company *i*, and "0" otherwise

Accruals Calculation Variables

$TACC_{it}$	Total accruals (net income before continuing operations minus cash flows from operations) for company *i* in year *t*, scaled by total assets for the company at the end of the previous year
ΔREV_{it}	The change in company *i*'s revenue from the prior year, scaled by total assets at the end of the previous year
PPE_{it}	Gross property, plant, and equipment for company *i*, scaled by total assets at the end of the previous year
ROA_{it-1}	The return on assets (net income divided by average total assets) for company *i* for the previous year

Variable Definitions (continued)

Additional Analyses Variables

$MEET_{it}$	An indicator variable with a value of "1" if earnings exactly meet or beat the mean of analysts' forecasts by one cent per share for company *i* in year *t*, and "0" otherwise
LIT_i	An indicator variable with a value of "1" if company *i* operates in a high litigation industry (SIC codes of 2833–2836, 3570–3577, 3600–3674, 5200–5961, and 7370–7370), and "0" otherwise
$STDFOR_{it}$	The standard deviation of analysts' earnings forecasts for company *i* in year *t*
$LOGEST_{it}$	The natural logarithm of the number of analysts following company *i* in year *t*

VITA

Michael Barnes

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE CONSIDERATION OF PRIOR EXPERIENCE IN AUDITOR INDUSTRY SPECIALIZATION

Major Field: Business Administration, with option in Accounting

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Accounting at Oklahoma State University, Stillwater, Oklahoma in July 2015.

Completed the requirements for the Masters of Accountancy at the University of Oklahoma, Norman, Oklahoma in May 2005.

Completed the requirements for the Bachelor of Science in Accounting at the University of Oklahoma, Norman, Oklahoma in May 2002.

Experience:

KPMG, Dallas, Texas
Manager – Forensics and Auditing
August 2005 to July 2010

Professional Memberships:

American Accounting Association (AAA)

American Institute of Certified Public Accountants (AICPA)